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ICHTHYOPLANKTON AND STATION DATA FOR SURFACE (MANTA) AND OBLIQUE (BONGO) PLANKTON TOWS FOR CALIFORNIA COOPERATIVE OCEANIC FISHERIES INVESTIGATION SURVEY CRUISES IN 2001

David A. Ambrose Richard L. Charter H. Geoffrey Moser

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ABSTRACT

This report provides ichthyoplankton data from Manta net tows (surface) and Bongo net tows (oblique) and associated station and tow data from California Cooperative Oceanic Fisheries Investigations (CalCOFI) cruises conducted in the Southern California Bight region in 2001. It is the 59th report in a series that presents these data for all biological-oceanographic CalCOFI surveys from 1951 to the present. A total of 260 stations was occupied during quarterly cruises over the survey area which extended from Avila Beach to San Diego, California. Transects extended seaward in a southwesterly direction to a maximum of approximately 330 n. mi. The most seaward station, 90.0 120.0, was approximately 400 n. mi. west of Punta Baja, Baja California, Mexico. The data are listed in a series of eight tables; the background, methodology, and information necessary for interpretation of the data are presented in an accompanying text. All pertinent station and tow data, including volumes of water strained and standard haul factors, are listed in the first and fifth tables. Other tables list, by station and month, counts (number per 100 cubic meters of water filtered) of each of the 75 larval fish taxa identified in Manta net tows and standardized counts of each of the 130 larval fish categories identified in Bongo net tows. This series of reports makes the CalCOFI ichthyoplankton and station data available to all investigators and serves as a guide to the computer data base.

INTRODUCTION

This report, the 59th in the series, provides ichthyoplankton and associated station and tow data from California Cooperative Oceanic Fisheries Investigations (CalCOFI) joint biological-oceanographic survey cruises conducted in 2001. This program was initiated in 1949, under the sponsorship of the Marine Research Committee of the State of California, to study the population fluctuations of the Pacific sardine (Sardinops sagax) and the environmental factors that may play a role in these fluctuations. CalCOFI is a partnership among the Southwest Fisheries Science Center of the National Marine Fisheries Service (NMFS), the Scripps Institution of Oceanography (SIO), and the California Department of Fish and Game (CDFG). NMFS and SIO supply ships and personnel to conduct the sea surveys, NMFS processes the plankton samples and analyzes the ichthyoplankton from them. SIO processes and analyzes hydrographic and biological samples and analyzes invertebrate groups from the plankton samples.

The boundaries, station placement, and sampling frequency for the CalCOFI surveys were based on the results of joint biological-oceanographic cruises conducted by NMFS and SIO during 1939–41. Originally, CalCOFI cruises were designed to collect sardine eggs and larvae and associated hydrographic data over the entire areal and seasonal spawning range of the species. From 1951 to 1960 the surveys were annual with cruises conducted monthly. The survey area was occupied quarterly during 1961–1965 and in 1966 the surveys became triennial with monthly cruises. Beginning in 1985 annual surveys were resumed, with quarterly cruises occupying only the Southern California Bight region (see Hewitt 1988 and Moser et al. 1993, 1994, 2001a, 2002 for summaries of CalCOFI historical sampling effort). Neuston¹ sampling with the Manta (Figure 1) was initiated in 1977–1978. Alhstrom and Stevens (1976), Gruber et al. (1982), and Doyle (1992a,b) provided initial information on the distribution and abundance of surface ichthyoplankton

¹Useage of term "neuston" for surface-living marine organisms is controversial because it was applied originally to organisms associated with the surface film in freshwater habitats (Naumann 1917). Banse (1975) reviewed in detail the evolution of this term, a related term "pleuston", and the various subdivisions of each. Neuston is now used by most workers in referring to the uppermost (upper $\sim 10-20$ cm) layer of the sea and to the assemblage of organisms that lives in that zone, either permanently of facultatively (Zaitsev 1970; Hemple and Weikert 1972; Peres 1982; Doyle 1992b). We accept this definition and use it interchangeably with the more general term "surface" (e.g., Surface waters, surface zone, surface tow, surface assemblage).

in the northeastern Pacific. Moser et al. (2002) summarized the spatial and temporal distribution and abundance of ichthyoplankton collected in Manta net tows on CalCOFI survey cruises from 1977–2000.

Hydrographic and biological data from CalCOFI surveys in 2001 have been published by the Scripps Institution of Oceanography (Univ. of Calif., SIO 2002a, b). All available records for all four 2001 CalCOFI surveys were verified and edited to produce this ichthyoplankton data report. These reports make the CalCOFI ichthyoplankton and station data available to all investigators and serve as guides to the computer data base. They are the basic documents against which changes in the data base can be compared as it is modified to correct errors and update earlier identifications. This report includes both Manta net tow data and Bongo net tow data. Previously these data were reported separately. Citations for other reports in this series are:

Survey	Manta Tow Report	Survey	Manta Tow Report
1977– 78	Moser et al. 2000b	1992	Watson et al. 2002b
1980–81	Ambrose et al. 2002a	1993	Ambrose et al. 2002d
1984	Charter et al. 2002a	1994	Charter et al. 2002d
1985	Ambrose et al. 2002b	1995	Sandknop et al. 2002c
1986	Charter et al. 2002b	1996	Watson et al. 2002c
1987	Sandknop et al. 2002a	1997	Ambrose et al. 2002e
1988	Watson et al. 2002a	1998	Ambrose et al. 2002f
1989	Ambrose et al. 2002c	1999	Ambrose et al. 2002g
1990	Charter et al. 2002c	2000	Watson et al. 2002d
1991	Sandknop et al. 2002b		
Survey	Oblique Tow Report	Survey	Oblique Tow Report
•	• •	•	
1951	Ambrose et al. 1987a	1962	Sumida et al. 1988a
1951 1952	-	1962 1963	Sumida et al. 1988a Ambrose et al. 1988a
	Ambrose et al. 1987a		
1952	Ambrose et al. 1987a Sandknop et al. 1987a	1963	Ambrose et al. 1988a
1952 1953	Ambrose et al. 1987a Sandknop et al. 1987a Stevens et al. 1987a	1963 1964	Ambrose et al. 1988a Sandknop et al. 1988b
1952 1953 1954	Ambrose et al. 1987a Sandknop et al. 1987a Stevens et al. 1987a Sumida et al. 1987a	1963 1964 1965	Ambrose et al. 1988a Sandknop et al. 1988b Stevens et al. 1988a
1952 1953 1954 1955	Ambrose et al. 1987a Sandknop et al. 1987a Stevens et al. 1987a Sumida et al. 1987a Ambrose et al. 1987b	1963 1964 1965 1966	Ambrose et al. 1988a Sandknop et al. 1988b Stevens et al. 1988a Sumida et al. 1988b
1952 1953 1954 1955 1956	Ambrose et al. 1987a Sandknop et al. 1987a Stevens et al. 1987a Sumida et al. 1987a Ambrose et al. 1987b Stevens et al. 1987b	1963 1964 1965 1966 1967	Ambrose et al. 1988a Sandknop et al. 1988b Stevens et al. 1988a Sumida et al. 1988b Ambrose et al. 1988b
1952 1953 1954 1955 1956 1957	Ambrose et al. 1987a Sandknop et al. 1987a Stevens et al. 1987a Sumida et al. 1987a Ambrose et al. 1987b Stevens et al. 1987b Sumida et al. 1987b	1963 1964 1965 1966 1967 1968	Ambrose et al. 1988a Sandknop et al. 1988b Stevens et al. 1988a Sumida et al. 1988b Ambrose et al. 1988b Sandknop et al. 1988c
1952 1953 1954 1955 1956 1957 1958	Ambrose et al. 1987a Sandknop et al. 1987a Stevens et al. 1987a Sumida et al. 1987a Ambrose et al. 1987b Stevens et al. 1987b Sumida et al. 1987b Sumida et al. 1987b Sandknop et al. 1987b	1963 1964 1965 1966 1967 1968 1969	Ambrose et al. 1988a Sandknop et al. 1988b Stevens et al. 1988a Sumida et al. 1988b Ambrose et al. 1988b Sandknop et al. 1988c Stevens et al. 1988b
1952 1953 1954 1955 1956 1957 1958 1959	Ambrose et al. 1987a Sandknop et al. 1987a Stevens et al. 1987a Sumida et al. 1987a Ambrose et al. 1987b Stevens et al. 1987b Sumida et al. 1987b Sumida et al. 1987b Sandknop et al. 1987b Stevens et al. 1987c	1963 1964 1965 1966 1967 1968 1969	Ambrose et al. 1988a Sandknop et al. 1988b Stevens et al. 1988a Sumida et al. 1988b Ambrose et al. 1988b Sandknop et al. 1988c Stevens et al. 1988b Sumida et al. 1988c

Survey	Oblique Tow Report	Survey	Oblique Tow Report
1984	Stevens et al. 1990	1993	Ambrose et al. 1999c
1985	Ambrose et al. 1999a	1994	Charter et al. 1999c
1986	Charter et al. 1999a	1995	Sandknop et al. 1999c
1987	Sandknop et al. 1999a	1996	Watson et al. 1999c
1988	Watson et al. 1999a	1997	Ambrose et al. 1999d
1989	Ambrose et al. 1999b	1998	Charter et al. 1999d
1990	Charter et al. 1999b	1999	Ambrose et al. 2001
1991	Sandknop et al. 1999b	2000	Watson et al. 2001
1992	Watson et al. 1999b		

SAMPLING AREA AND PATTERN

A total of 260 standard CalCOFI survey stations was occupied on four cruises in 2001, employing two research vessels:

0101, RV David Starr Jordan, 63 stations, January 7 - 22;

0104, RV David Starr Jordan, 66 stations, April 6 – 23;

0107, RV New Horizon, 66 stations, July 10 - 26;

0110, RV New Horizon, 65 stations, October 25 – November 8.

The core survey area extended from Avila Beach to San Diego, California and seaward on six survey lines to approximately 120–330 n. mi. (Figures 1 and 2). Cruise 0101 occupied nine lines, extending northward to Monterey Bay and cruise 0104 occupied 11 lines northward to San Francisco; however, manta and oblique plankton tows were made only in the core area. The most seaward oblique plankton tow station, 90.0 120.0, was approximately 400 n. mi. west of Punta Baja, Baja California, Mexico. On all cruises, lines 76.7 and 80.0 extended seaward to station 100.0, lines 83.3 and 86.7 extended to station 110.0, and lines 90.0 and 93.3 extended to station 120.0 (Figures 1 and 2).

SAMPLING GEAR AND METHODS

Surface plankton tows were made with a modified version of the Manta net originally described by Brown and Cheng (1981). It consists of a rectangular mouth 15.5 cm deep and 86 cm wide attached to a

²Beginning in 1981 we changed our designation of ordinal survey lines (those ending in "3" and "7") to an exact decimal notation. Thus, lines 77, 83, 87, 93, etc. were changed to 76.7, 83.3, 86.7, 93.3, etc. to indicate the spacing between cardinal lines (those ending in "0"). Scripps Institution of Oceanography continues to use the original designation for ordinal lines (Figures 1 and 2 and see Univ. of Calif., SIO 2002a, b).

frame that supports square lateral extensions covered with plywood and urethane foam (Figure 1). These extensions stabilize the net when it is towed and keep the top of the net at the sea surface. The net is constructed of 0.505 mm nylon mesh. The towing bridle is asymmetrical with one side longer than the other; when the net is towed this bridle arrangement forces the mouth away from the ship at a slight angle. A General Oceanics flowmeter was suspended across the center of the net mouth to measure the amount of water filtered during each tow. At each Manta tow station the tow line from the bridle was attached to the hydrographic wire and then lowered to slightly below the surface of the water before the net was deployed. The net was towed at a ship speed of 1.0–2.0 knots for 15 minutes. Samples were preserved in 5% buffered formalin and returned to the plankton sorting laboratory at the SWFSC at the end of the cruise.

In 1978, the standard 1-m ring net with towing bridle was replaced by a bridle-free "Bongo" net. The Bongo frame (McGowan and Brown 1966; Smith and Richardson 1977) consists of a pair of circular frames connected to a central axle. The axle is free to rotate so that the mouth openings are vertical during the tow. The standard CalCOFI net has 71 cm diameter frames and net material constructed of nylon mesh. Each net consists of a cylindrical section \sim 146 cm long, a truncated conical section \sim 161 cm long, and a detachable cod end. The starboard net, from which the standard sample is taken, is constructed of 0.505 mm mesh. The sample from the port side is used for other purposes; the mesh size is either 0.505 mm or 0.333 mm depending on requirements. The cod end of each net is constructed of 0.333 mm mesh.

The standard tow in 2001 was a double oblique haul to 212 m depth (to 15 m from the bottom in shallow areas) designed to filter a constant amount of water per depth interval (~ 2 m³/m of depth) over the vertical range of most ichthyoplankters. Hauls were made at a ship speed of 1.5–2.0 knots and initiated by clamping the net to the towing cable above a 34 kg weight suspended below the surface. The net was lowered to ~ 210 m depth by paying out 300 m of wire at 50 m/minute (35 m of depth/minute). After fishing at depth for 30 seconds, the net was retrieved at 20 m/minute (14 m of depth/minute). The angle of stray was recorded every 30 seconds and maintained at 45° (± 3°) by adjusting ship speed and course. After reaching the surface, the nets were washed down and the samples preserved in 5% formalin buffered with sodium borate. At the beginning and end of each tow, readings were made from a flow meter suspended in the mouth of the starboard net. Detailed descriptions of gear and methods are given by Kramer et al. (1972) and Smith and Richardson (1977); Ohman and Smith (1995) provided summaries of historical CalCOFI zooplankton methods and calibration factors for the various gear types.

LABORATORY PROCEDURES

The ichthyoplankton was removed from the invertebrate portion of each sample and bottled separately in 3% buffered formalin. In addition to fish eggs and larvae, some samples contained juvenile, and occasionally adult, stages of fishes; these were removed and bottled separately in 3% formalin. The volume of water filtered by each net was computed from the flowmeter readings. A "standard haul factor" is used for oblique CalCOFI net tows to calculate the total number of ichthyoplankters of a taxon per unit surface area (Kramer et al. 1972; Smith and Richardson 1977; Moser et al. 1993). A requirement for this is the entire depth distribution of the taxon must be encompassed during the tow. The Manta net samples only the upper ~15.5 cm of the water column and most, if not all, ichthyoplankton taxa that inhabit the surface zone have a vertical range > 15.5 cm. Even taxa associated with the immediate surface layer may range deeper than 15.5 cm as a result of diel migratory patterns or vertical mixing (Hempel and Weikert 1972; Doyle 1992b). Calculation of total numbers of eggs or larvae per unit surface area from Manta net samples awaits accurate information on the fine-scale vertical distribution of these organisms in the upper region of the water column. Even if there are few species whose larvae are restricted to the upper 15.5 cm of the water column, the time series of Manta samples provides a useful index of relative abundance for species whose larvae appear in these samples. In this report we express quantities of eggs or larvae in each sample as unadjusted counts or

as numbers of eggs or larvae per unit volume of water filtered by the Manta net. We determined a zooplankton displacement volume for each Bongo net sample (methods described in Staff, SPFI 1953 and Kramer et al. 1972). Samples containing > 25 ml of plankton were fractioned to ~50% of their original volume (Manta net samples are not fractioned). Aliquot percentages for fractioned samples are listed in Table 5 under the "Percent Sorted" column. The sorting process included the removal of all ichthyoplankton from the samples and identification and separation of: eggs and larvae of Pacific sardine, northern anchovy, and Pacific saury and larvae of Pacific hake. Body lengths of sardine, anchovy, and hake larvae were measured to the nearest 0.5 mm.

A standard haul factor (SHF) was calculated for each Bongo net tow to make them comparable and to allow estimation of areal abundance. The SHF is calculated by the formula:

$$SHF = \underline{10 D}$$
V

where D = depth of haul = cosine of the average angle of stray of the towing cable multiplied by cable length (m)

V = total volume of water (m^3) strained during the haul

$$V = R \cdot a \cdot p$$

where R = total number of revolutions of the current meter during the haul

 $a = area (m^2)$ of the mouth of the net

p = length of the column of water needed produce one revolution of the current meter

Tow depth, volume of water strained, and standard haul factor are listed in Table 5 for each tow taken during 2001. Detailed descriptions of factors involved in calculating these values are presented in Ahlstrom (1948), Kramer et al. (1972), and Smith and Richardson (1977).

IDENTIFICATION

Identification of ichthyoplankton species beyond those separated during the sorting process was done by a separate group of specialists. Early ontogenetic stages of fishes are inherently difficult to identify and this is further complicated by the large number and diversity of species which contribute to the ichthyoplankton of the California Current region. Most identifications were accomplished by establishing ontogenetic series on the basis of morphology, meristics, and pigmentation, and then linking these series through overlapping features to known metamorphic, juvenile, or adult stages (Powles and Markle 1984). Our ability to identify larvae in the California Current region improved greatly during 1988–1995 as a result of an intensive research project aimed at producing a taxonomic monograph on the ontogenetic stages of fishes of this region (Moser 1996). Except for damaged specimens, most larvae in the 2001 surveys could be identified to species. A total of 75 larval fish taxa was identified in Manta net tows for 2001: 67 to species and 8 to genus. A total of 130 larval fish categories (including disintegrated) was identified in the Bongo net tows: 108 to species, 18 to genus, 1 to subfamily, and 2 to family. Identifications were done in the Ichthyoplankton Ecology Laboratory of the Fisheries Resources Division by S. R. Charter, E. M. Sandknop, and the senior author of this report.

With few exceptions, taxonomic categories above species represent small specimens which were damaged and partly disintegrated during capture. The following taxonomic categories in Tables 2–4 and 6–8 require special explanation:

Citharichthys spp. – small or damaged larvae, probably C. sordidus and/or C. stigmaeus lacking diagnostic characters.

Cyclothone spp. – small or damaged larvae, mostly C. acclinidens and/or C. pseudopallida lacking diagnostic characters.

Cyclothone pseudopallida – larger larvae (primarily postflexion stage) having diagnostic pigmentation characters.

Diaphus spp. – Diaphus theta is the dominant Diaphus species in the survey area and most, if not all, of the larvae from the Southern California Bight region are this species; the generic category is used because a small proportion of the Diaphus larvae captured at the outer margin of the survey pattern may represent other species whose larvae are identical to those of D. theta.

Disintegrated fish larvae – larvae that could not be identified because of their poor condition; separated from the "unidentified" category to monitor the general condition of the ichthyoplankton samples through the time series.

Howella spp. – larvae represent a single species, either H. brodiei or H. sherborni; taxonomy of the adult is unresolved.

Nannobrachium – Zahuranec (2000) moved the subgroup of Lampanyctus characterized by small or absent pectoral fins in adults to the genus Nannobrachium; two Nannobrachium species, N. ritteri (formerly L. ritteri) and N. regale (formerly L. regalis), occur commonly in the present CalCOFI survey pattern; larvae of these species > ~5 mm have been identified in oblique tow samples since 1954; beginning in 1985, larvae of two other species, N. bristori and N. hawaiiensis, have been identified and included in the CalCOFI data base; in previous data reports these were referred to as Lampanyctus "niger" and Lampanyctus "no pectorals", respectively (see Moser 1996).

Lyopsetta exilis – see comment for Pleuronectidae.

Melamphaes spp.—small or damaged larvae, mostly M. lugubris and/or M. parvus lacking diagnostic characters.

Microstoma spp. – larvae of a distinct but undescribed microstomatid species.

Parophrys vetulus - see comment for Pleuronectidae.

Pleuronectidae – Sakamoto (1984) changed pleuronectid generic designations for species in the CalCOFI area as follows: 1) Glyptocephalus zachirus was changed to Errex zachirus; 2) Isopsetta isolepis, Lepidopsetta bilineata, and Parophrys vetulus were transferred into Pleuronectes and 3) Lyopsetta exilis was changed to Eopsetta exilis; although these changes were incorporated in the lists of Robins et al. (1991) and Eschmeyer (1998) we follow Nelson (1994) in retaining the older nomenclature because Sakamoto's (1984) changes were based on a phenetic study; also, the older

names are used in the major identification guides to fishes of our region (Miller and Lea 1972, Eschmeyer et al. 1983, Matarese et al. 1989, and Moser 1996).

Scopelosaurus spp.—according to Balanov and Savinykh (1999) there are two valid species of this genus in the north Pacific, S. adleri and S. harryi, but only the former spawns in the California Current region; the generic designation is used here since we have not yet reexamined the historical CalCOFI samples to confirm the findings of Balanov and Savinykh (1999).

Sebastolobus spp. – larvae of this genus < 10 mm in length are not identifiable to species; larvae > 10 mm are identified as S. alascanus or S. altivelis.

Vinciguerria lucetia – V. lucetia, an eastern tropical Pacific species, is common in the present CalCOFI region whereas the central water mass species V. poweriae is encountered rarely, usually only at the most seaward CalCOFI stations; a small percentage of V. poweriae larvae may have been included in the V. lucetia category because of the difficulty in separating early larvae which often are virtually identical.

SPECIES SUMMARY

Of the five most abundant larvae collected in Manta net tows on CalCOFI cruises in 2001, Pacific sardine (Sardinops sagax) ranked first in abundance with 43.7% of the total fish larvae and fourth in occurrence with larvae collected in 13.8% of the total samples (Tables 2 and 3). It was over twice as abundant as the second most abundant species, northern anchovy (Engraulis mordax), which accounted for 20.3% of the total larvae and ranked second in occurrence (27.7% of the samples). California grunion (Leuresthes tenuis) was the third most abundant with 12.5% of the total larvae; it tied for ninth in frequency of occurrence (4.2 % of the samples). The high abundance of California grunion was attributable to a single collection (454 larvae) at station 90.0 28.0 on Cruise 0004JD. The rockfish genus (Sebastes) ranked fourth in abundance with 5.4% of the total larvae and third in total occurrence (14.2% of the samples). Pacific saury (Cololabis saira) ranked fifth in abundance (5.2% of total larvae) and first in total occurrence (28.1% of the samples). The next five most abundant taxa were mussel blenny Hypsoblennius jenkinsi (2.5% of total larvae), jacksmelt Atherinopsis californiensis (1.3%), blacksmith Chromis punctipinnis (1.2%). Panama lightfish Vinciguerria lucetia (0.8%), and dogtooth lanternfish Ceratoscopelus townsendi (0.8%). These species ranked 5th, tied for 19th, tied for 12th, tied for 9th, and 8th in frequency of occurrence, respectively. The ten most abundant taxa comprised 93.7% of all the larvae collected in Manta net tows on CalCOFI cruises in 2001. The remaining 6.3% was distributed among 65 other taxa. Of the ten most abundant taxa, two were coastal demersal taxa, two were coastal pelagic species, one was epipelagic, three were nearshore schooling species, and two were midwater species that migrate to the epipelagic zone at night.

Of the five most abundant larvae collected in Bongo net tows on the 2001 CalCOFI survey, the Pacific sardine (Sardinops sagax) ranked first in abundance, with 20.7% of the total larvae, and 19th in occurrence, with 11.2% positive tows (Tables 6 and 7). Panama lightfish (Vinciguerria lucetia) ranked second in abundance with 19.7% of the total larvae and tied for 10th in occurrence (20.5% of the samples). Northern anchovy (Engraulis mordax) ranked third with 16.8% of the larvae and first in occurrence (33.2% of the stations). The rockfish genus Sebastes ranked fourth in abundance with 8.5% of the total larvae and fourth in frequency of occurrence with 27.8% positive tows. California smoothtongue (Leuroglossus stilbius) ranked fifth in abundance (4.0% of total larvae) and third in occurrence (29.0% positive tows). The next five most abundant taxa were snubnose blacksmelt Bathylagus wesethi (3.2% of total larvae), Pacific hake Merluccius productus (3.2%), northern lampfish Stenobrachius leucopsarus (2.6%), Pacific sanddab Citharichthys sordidus (2.4%), and speckled sanddab Citharichthys stigmaeus

9th, 8th, 7th, 6th, and 5th in frequency of occurrence, respectively. The ten most abundant taxa comprised 83.5% of all the larvae collected in Bongo net tows on CalCOFI cruises in 2001. The remaining 16.5% was distributed among 120 other taxa (including the disintegrated category). Of the ten most abundant taxa, four were midwater species, two were coastal pelagic species, and four were coastal demersal taxa.

EXPLANATION OF TABLES

- Table 1. This table lists for each tow the pertinent station and tow data, the volume of water filtered, and the total number of fish eggs and larvae for Manta net tow stations occupied during the 2001 CalCOFI survey. Cruises are designated by a six character alphanumeric code; the first two digits indicate the year and the second two the month, followed by the ship code, JD (David Starr Jordan) or NH (New Horizon). Within each cruise the data are listed in order of increasing line and station number (southerly and seaward directions); the order of station occupancy is shown on the station charts (Figures 2 and 3). Stations are designated by two groups of numbers; the first set indicates the line and decimal fraction and the second set indicates the station and decimal fraction. Time is listed as Pacific Standard Time at the start of each tow in 24-hour designation. The values for total fish eggs and larvae are raw counts (unadjusted for volume of water filtered). The listings for station latitude and longitude in this table may differ from values given for the same station in the SIO data reports, reflecting the slight difference in position of the net tow and hydrocast.
- Table 2. Pooled occurrences of all larval fish taxa taken in Manta nets on the RV *David Starr Jordan* and the RV *New Horizon* during the 2001 CalCOFI survey. Taxa are listed in rank order.
- Table 3. Pooled counts (unadjusted for volume of water filtered) of all larval fish taxa taken in Manta net tows on the the RV *David Starr Jordan* and the RV *New Horizon* during the 2001 CalCOFI survey. Taxa are listed in rank order.
- Table 4. Numbers of fish larvae for each taxon taken in Manta net tows on the RV *David Starr Jordan* and the RV *New Horizon* during the 2001 CalCOFI survey. Numbers of larvae are listed as number per 100 m³ of water filtered. Orders and families are listed in phylogenetic sequence (Eschmeyer 1998); other taxa are listed alphabetically.
- Table 5. This table lists for each Bongo net tow the pertinent station and tow data, the volume of water filtered, the standard haul factor, the plankton volume, the percentage of sample sorted, and the total number of fish eggs and larvae during the 2001 survey. Cruises are designated by four digits; the first two indicate the year and the second two the month. Within each cruise the data are listed in order of increasing line and station number (southerly and seaward directions); the order of station occupancy is shown on the station charts (Figures 2 and 3). Stations are designated by two groups of numbers; the first set indicates the line and decimal fraction and the second set indicates the station and decimal fraction. Ship codes are JD, David Starr Jordan or NH, New Horizon. Plankton displacement volumes were determined after removal of large organisms (those with individual displacement volumes > 5 ml) and expressed as ml per 1000 m³ of water filtered. Time is listed as Pacific Standard Time at the start of each tow in 24-hour designation. The values for total fish eggs and larvae are raw counts (unadjusted for percent of sample sorted or standard haul factor). The listings for station latitude and longitude in this table may differ from values given for the same station in the SIO data reports, reflecting the slight difference in position of the net tow and hydrocast. Dates given here and in Figures 2 and 3 for the beginning and end of each cruise are based on Pacific Standard time at the first and last oblique net tow station of the cruise and do not include transit time from port to the first station and to port after the last station. Thus, our cruise

- dates may differ slightly from those in SIO reports which are based on GMT prior to 1990 and include transit time to the first station and from the last station.
- Table 6. Pooled occurrences of all larval fish taxa taken in Bongo net tows on CalCOFI survey cruises in 2001 listed in rank order.
- Table 7. Pooled counts of all larval fish taxa taken in Bongo net tows on CalCOFI survey cruises in 2001 listed in rank order. Numbers are adjusted for percent sorted and standard haul factors.
- Table 8. Numbers of fish larvae for each taxon, listed by station and calendar month of the Bongo net tow. Counts are adjusted for percentage of sample sorted and standard haul factor. The orders and families are listed in phylogenetic sequence (Eschmeyer 1998); other taxa are listed alphabetically.

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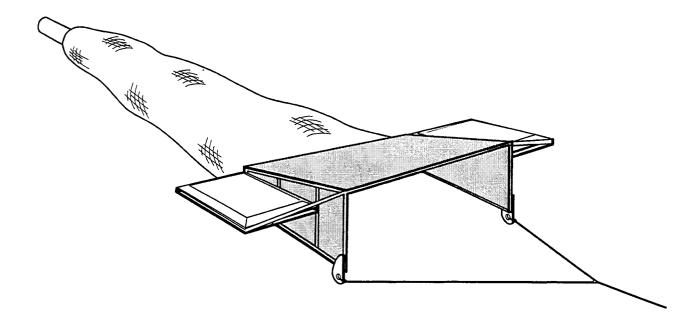


Figure 1. Diagram of the Manta net used on CalCOFI surveys.

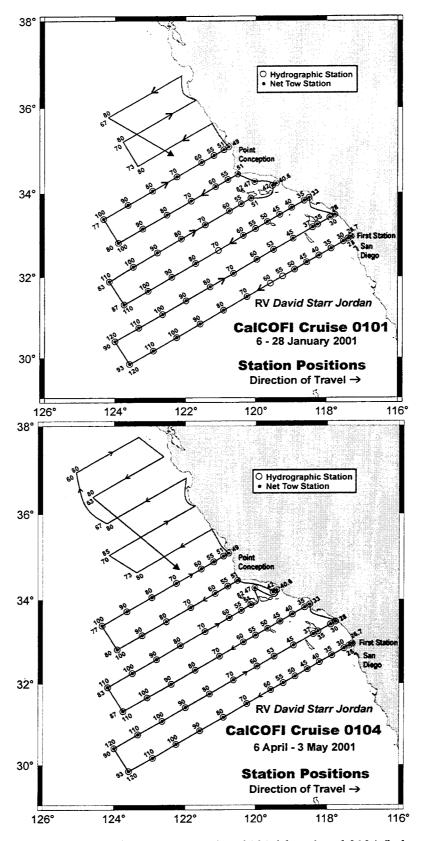


Figure 2. Stations and cruise tracks for CalCOFI cruises 0101 (above) and 0104 (below). Circles indicate hydrographic stations; dots indicate net tow stations. On cruise 0104, a Manta tow was taken unaccompanied by a Bongo tow at station 93. 120.

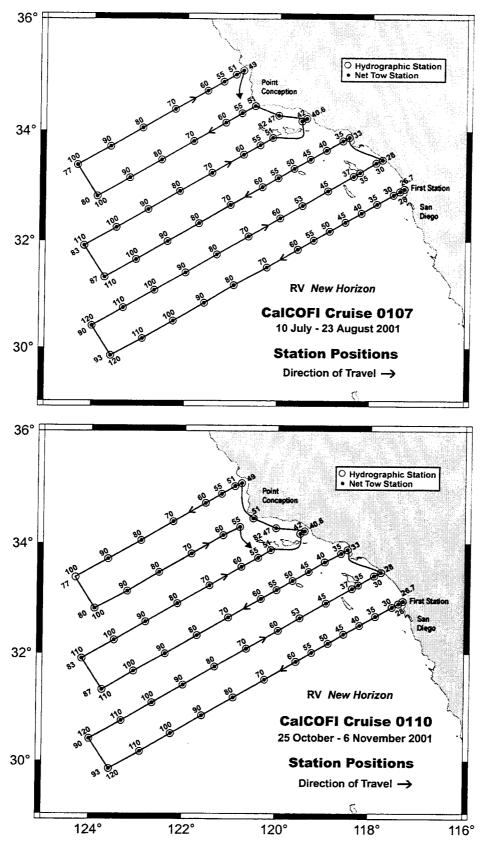


Figure 3. Stations and cruise tracks for CalCOFI cruises 0107 (above) and 0110 (below). Symbols as in Figure 2.

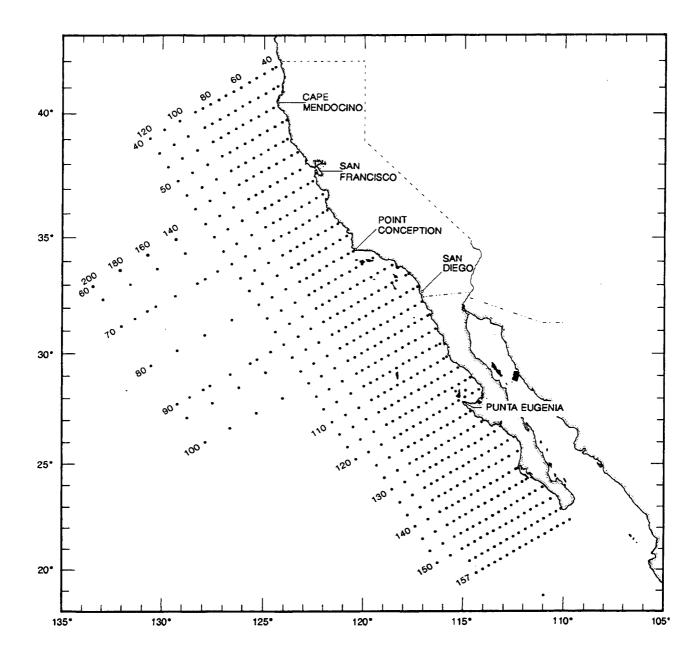


Figure 4. The basic CalCOFI station pattern occupied, in part, by cruises during 1951-1984.

TABLE 1. Station and plankton tow data for Manta net tows taken on the 2001 CalCOFI survey. Numbers of fish eggs and larvae are raw counts, unadjusted for volume (cubic meters) of water filtered.

CalCOFI Cruise 0101

Line	Station		ude (N) min.	_	tude (W) min.	Ship Code		w D mo	ate . day	Time (PST)	Volume Water Strained	Total Larvae	Total Eggs
				8)			()	J 11 C		-55
76.7	49.0	35	05.3	120	46.7	JD	01	01	22	2005	74	13	18
76.7	51.0	35	01.3	120	55.1	JD	01	01	22	1749	65	11	4
76.7	55.0	34	53.2	121	11.9	JD	01	01	22	1404	83	3	33
76.7	60.0	34	43.3	121	32.9	JD	01	01	22	0825	69	3	15
76.7	70.0	34	23.3	122	14.9	m JD	01	01	22	0330	62	2	1
76.7	80.0	34	03.3	122	56.6	m JD	01	01	21	2135	72	0	2
76.7	90.0	33	43.3	123	38.1	JD	01	01	21	1556	62	1	2
76.7	100.0	33	23.3	124	19.4	JD	01	01	21	0818	72	0	2
80.0	51.0	34	26.9	120	31.0	JD	01	01	19	2123	88	30	97
80.0	55.0	34	19.1	120	47.9	JD	01	01	20	0037	72	28	4
80.0	60.0	34	09.1	121	09.0	Ъ	01	01	20	0422	61	0	3
80.0	70.0	33	48.9	121	50.5	JD	01	01	20	1054	80	1	234
80.0	80.0	33	29.1	122	32.0	ЛD	01	01	20	1634	73	0	2
80.0	90.0	33	09.2	123	13.5	JD	01	01	20	2150	87	2	2
80.0	100.0	32	49.1	123	54.3	JD	01	01	21	0333	60	1	5
81.8	46.9	34	16.4	120	01.5	JD	01	01	19	1725	76	22	16
83.3	40.6	34	13.5	119	24.9	JD	01	01	19	1230	80	19	1352
83.3	42.0	34	10.5	119	30.9	$\overline{ m JD}$	01	01	19	1044	87	20	3702
83.3	51.0	33	52.7	120	08.1	ΊD	01	01	19	0437	76	25	701
83.3	55.0	33	44.7	120	24.6	$\overline{ m D}$	01	01	19	0139	55	0	4
83.3	60.0	33	34.7	120	45.4	JD	01	01	18	2140	71	2	2
83.3	70.0	33	14.7	121	26.6	Ъ	01	01	18	1541	59	1	4
83.3	80.0	32	54.7	122	07.7	Ъ	01	01	18	0807	76	0	5
83.3	90.0	32	34.8	122	48.8	ΊD	01	01	18	0033	58	1	0
83.3	100.0	32	14.6	123	29.3	ΊD	01	01	17	1837	61	2	2
83.3	110.0	31	53.0	124	09.6	Ъ	01	01	17	1236	67	0	0
86.7	33.0	33	53.3	118	29.4	Ъ	01	01	14	1613	66	5	736
86.7	35.0	33	49.4	118	37.7	Ъ	01	01	14	1855	63	5	963
86.7	40.0	33	39.4	118	58.6	Ъ	01	01	14	2301	77	12	2184
86.7	45.0	33	29.4	119	19.1	$\overline{\mathbb{D}}$	01	01	15	0303	58	7	18
86.7	50.0	33	19.4	119	39.8	$\overline{\mathrm{1\!D}}$	01	01	15	0721	63	39	3
86.7	55.0	33	09.1	119	59.9	JD	01	01	15	1136	63	1	0
86.7	60.0	32	59.4	120	21.0	ΊD	01	01	15	1556	55	0	2
86.7	80.0	32	19.4	121	42.9		01	01	16	1140	65	0	13
86.7	90.0	31	59.5	122	23.5	ΊD	01	01	16	1815	56	0	109
86.7	100.0	31	39.4	123	04.2	Ъ	01	01	17	0027	67	0	118
86.7	110.0	31	19.4	123	44.6	JD	01	01	17	0618	60	3	0
90.0	28.0	33	29.1	117	46.1		01	01	14	0631	66	37	104
90.0	30.0	33	25.1	117	54.3		01	01	14	0438	73	2	2
90.0	35.0	33	15.1	118	14.9		01	01	14	0031	72	1	62
90.0	37.0	33	11.1	118	23.2		01	01	13	2157	74	2	2
90.0	45.0	32	55.2	118	56.1		01	01	13	1658	61	0	0
90.0	53.0	32	39.0	119	28.9		01	01	13	1139	62	0	5
90.0	60.0	32	25.1	119	57.6	JD	01	01	13	0630	63	0	3

CalCOFI Cruise 0101

TABLE 1. (cont.)

											Volume		
		Latitu	ide (N)	Longit	tude (W)	Ship	To	w Da	ate	Time	Water	Total	Total
Line	Station	deg.	min.	deg.	min.	Code	yr.	mo.	day	(PST)	Strained	Larvae	Eggs
90.0	70.0	32	05.0	120	38.4	JD	01	01	12	2352	56	0	8
90.0	80.0	31	45.4	121	18.4	JD	01	01	12	1715	69	1	3
90.0	90.0	31	25.1	121	59.4	JD	01	01	12	0806	78	0	1
90.0	100.0	31	05.1	122	39.8	JD	01	01	12	0049	62	2	10
90.0	110.0	30	45.1	123	19.9	JD	01	01	11	1827	65	5	2
90.0	120.0	30	25.1	123	59.9	JD	01	01	11	1200	53	0	0
93.3	26.7	32	57.4	117	18.3	JD	01	01	07	1156	9 7	6	2
93.3	28.0	32	54.8	117	23.7	JD	01	01	07	1420	77	0	1
93.3	30.0	32	51.0	117	31.8	JD	01	01	08	0000	80	0	0
93.3	35.0	32	40.8	117	52.4	JD	01	01	08	0406	84	0	54
93.3	40.0	32	30.8	118	12.8	JD	01	01	08	0807	6 7	0	0
93.3	45.0	32	21.0	118	33.2	JD	01	01	08	1409	71	0	86
93.3	50.0	32	10.6	118	53.5	JD	01	01	08	1830	60	0	13
93.3	70.0	31	30.8	120	14.8	JD	01	01	09	1710	62	1	1
93.3	80.0	31	11.0	120	55.2	JD	01	01	09	2315	63	0	1
93.3	90.0	30	50.8	121	35.3	JD	01	01	10	0521	62	0	3
93.3	100.0	30	30.8	122	15.4	Ъ	01	01	10	1200	63	0	6
93.3	110.0	30	10.8	122	55.3	$\overline{\mathbb{D}}$	01	01	10	2048	70	3	6
93.3	120.0	29	50.8	123	35.2	Ъ	01	01	11	0441	66	0	6

CalCOFI Cruise 0104

		Latitu	ıde (N)	Longi	tude (W)	Ship	To	w Da	ite	Time	Volume Water	Total	Total
Line	Station	deg.	min.	deg.	min.	Code	yr.	mo.	day	(PST)	Strained	Larvae	Eggs
76.7	49.0	35	05.3	120	46.8	ΊD	01	04	23	0954	75	0	11
76.7	51.0	35	01.3	120	55.2	\mathfrak{D}	01	04	23	0803	77	2	10
76.7	55.0	34	53.2	121	12.0	JD	01	04	23	0430	68	42	15
76.7	60.0	34	43.3	121	33.1	\mathfrak{W}	01	04	22	2358	71	5	15
76.7	70.0	34	23.2	122	14.9	Ъ	01	04	22	1626	64	61	348
76.7	80.0	34	03.4	122	56.8	JD	01	04	22	0807	67	58	6
76.7	90.0	33	43.3	123	38.2	JD	01	04	22	0031	71	11	2
76.7	100.0	33	23.2	124	19.6	JD	01	04	21	1737	74	0	1
80.0	51.0	34	27.0	120	31.3	JD	01	04	19	1909	85	1	2
80.0	55.0	34	19.1	120	48.0	JD	01	04	19	2227	71	0	12
80.0	60.0	34	08.9	121	09.3	ЛD	01	04	20	0224	68	79	27
80.0	70.0	33	48.9	121	50.7	JD	01	04	20	0809	71	16	1760
80.0	80.0	33	29.1	122	31.9	JD	01	04	20	1637	72	114	32
80.0	90.0	33	09.1	123	13.0	JD	01	04	20	2335	67	11	1
80.0	100.0	32	49.1	123	54.3	JD	01	04	21	0803	60	4	4
81.8	46.9	34	16.6	120	01.6	Ъ	01	04	18	0055	90	0	0
83.3	40.6	34	13.6	119	24.8	Ъ	01	04	18	0519	89	6	3
83.3	42.0	34	10.7	119	30.4	${ m JD}$	01	04	19	1154	70	0	2
83.3	51.0	33	52.8	120	08.2	JD	01	04	17	1910	73	96	17
83.3	55.0	33	44.7	120	24.6	${ m 1\!D}$	01	04	17	1557	74	3	13

TABLE 1. (cont.)

CalCOFI Cruise 0104

											Volume		
		Latitu	ide (N)	Longi	tude (W)	Ship	To	w D	ate	Time	Water	Total	Total
Line	Station	deg.	min.	deg.	min.	Code	yr.	mo.	day	(PST)	Strained	Larvae	Eggs
83.3	60.0	33	34.6	120	45.4	m JD	01	04	17	1136	65	25	122
83.3	70.0	33	14.8	121	26.6	JD	01	04	17	0418	86	62	220
83.3	80.0	32	54.7	122	08.0	JD	01	04	16	2223	82	90	35
83.3	90.0	32	34.7	122	48.7	JD	01	04	16	1540	81	1	36
83.3	100.0	32	14.7	123	29.4	${\mathbb D}$	01	04	16	0830	88	2	1225
83.3	110.0	31	54.8	124	10.2	${ m JD}$	01	04	16	0336	96	18	19
86.7	33.0	33	53.4	118	29.3	JD	01	04	13	1307	74	14	318
86.7	35.0	33	49.5	118	37.6	m JD	01	04	13	1634	77	40	0
86.7	40.0	33	39.4	118	58.5	Ъ	01	04	13	2049	70	38	0
86.7	45.0	33	29.4	119	18.9	Ъ	01	04	14	0111	62	8	2
86.7	50.0	33	19.3	119	39.7	JD	01	04	14	0545	74	163	12
86.7	55.0	33	09.5	120	00.2	JD	01	04	14	0846	74	149	85
86.7	60.0	32	59.6	120	20.9	JD	01	04	14	1437	57	113	450
86.7	70.0	32	39.3	121	02.0	m JD	01	04	14	2050	71	277	222
86.7	80.0	32	19.5	121	42.9	JD	01	04	15	0300	63	141	46
86.7	90.0	31	59.3	122	23.6	JD	01	04	15	0757	7 7	2	4
86.7	100.0	31	39.5	123	04.2	JD	01	04	15	1525	76	3	38
86.7	110.0	31	19.5	123	44.7	JD	01	04	15	2128	91	0	44
90.0	28.0	33	29.1	117	46.2	1D	01	04	13	0212	88	531	1178
90.0	30.0	33	25.1	117	54.4	JD	01	04	12	2346	85	56	1332
90.0	35.0	33	15.1	118	15.2	ЛD	01	04	12	1937	83	204	8012
90.0	37.0	33	11.1	118	23.3	JD	01	04	12	1703	73	0	26
90.0	45.0	32	55.1	118	56.2	m JD	01	04	12	1136	72	0	1297
90.0	53.0	32	39.2	119	28.8	JD	01	04	12	0414	63	12	28
90.0	60.0	32	25.1	119	57.7	JD	01	04	11	2303	74	69	164
90.0	70.0	32	05.1	120	38.4	JD	01	04	11	1631	76	150	173
90.0	80.0	31	44.9	121	19.0	m JD	01	04	11	0827	74	11	188
90.0	90.0	31	25.1	121	59.5	JD	01	04	11	0024	70	4	14
90.0	100.0	31	04.9	122	39.3	JD	01	04	10	1745	75	2	3
90.0	110.0	30	45.1	123	20.0	· JD	01	04	10	0839	68	2	20
90.0	120.0	30	25.1	123	59.8	JD	01	04	10	0253	62	2	10
93.3	26.7	32	57.3	117	18.3	JD	01	04	06	1256	72	1	325
93.3	28.0	32	54.7	117	23.7	JD	01	04	06	1522	72	0	456
93.3	30.0	32	50.8	117	31.9	$\mathfrak{I}\!\mathcal{D}$	01	04	06	1826	74	3	80
93.3	35.0	32	40.9	117	52.5	JD	01	04	06	2231	94	24	2707
93.3	40.0	32	30.9	118	12.9	JD	01	04	07	0259	77	446	4715
93.3	45.0	32	20.9	118	33.4	JD	01	04	07	0739	80	36	2280
93.3	50.0	32	10.7	118	53.6	, JD	01	04	07	1204	73	0	104
93.3	55.0	32	00.9	119	13.8	JD	01	04	07	1616	75	280	180
93.3	60.0	31	51.0	119	34.2	JD	01	04	07	2211	53	11	168
93.3	70.0	31	30.8	120	14.9	JD	01	04	08	0502	67	6	210
93.3	80.0	31	10.7	120	55.2	Ъ	01	04	08	1138	71	8	732
93.3	90.0	30	50.9	121	35.4	JD	01	04	08	1741	75	1	2
93.3	100.0	30	31.0	122	15.5	Ъ	01	04	08	2352	72	0	95
93.3	110.0	30	10.6	122	55.1	JD	01	04	09	0831	76	1	79
93.3	120.0	29	50.8	123	35.0	JD	01	04	09	1704	70	2	60

		Latiti	ude (N)	Longi	tude (W)	Ship	To	w D	ate	Time	Volume Water	Total	Total
Line	Station		min.	_	min.	Code			day	(PST)	Strained	Larvae	Eggs
				_			•						
76.7	49.0	35	05.4	120	46.9	NH	01	07	26	0838	66	2	5610
76.7	51.0	35	01.0	120	56.4	NH	01	07	26	0600	72	24	1533
76.7	55.0	34	53.3	121	11.9	NH	01	07	26	0215	84	26	5
76.7	60.0	34	43.3	121	33.0	NH	01	07	25	2216	58	10	32
76.7	70.0	34	23.4	122	15.0	NH	01	07	25	1640	74	7	9
76.7	80.0	34	03.3	122	56.6	NH	01	07	25	1024	68	9	17
76.7	90.0	33	43.3	123	38.2	NH	01	07	25	0137	70	3	9
76.7	100.0	33	23.1	124	19.5	NH	01	07	24	1933	56	0	3
80.0	51.0	34	26.9	120	31.5	NH	01	07	22	2315	65	1	153
80.0	55.0	34	19.2	120	48.3	NH	01	07	23	0307	68	8	4
80.0	60.0	34	09.1	121	09.0	NH	01	07	23	0814	58	0	4
80.0	70.0	33	49.0	121	50.6	NH	01	07	23	1632	68 57	0	0
80.0	80.0	33	28.8	122	32.0	NH	01	07	23	2225	57	2	4
80.0	90.0	33	09.1	123	13.2	NH	01	07	24	0409	63	5	17
80.0	100.0	32	49.0	123	54.4	NH	01	07	24	0853	76	1	4
81.8	46.9	34	16.8	120	00.9	NH	01 01	07 07	22 22	1702 0858	60 80	0 57	231
83.3	40.6 42.0	34 34	13.6 10.7	119 119	24.6 30.5	NH NH	01	07	22	0648	62	9	8397 1372
83.3 83.3	51.0	33	52.8	120	08.3	NH	01	07	22	0048	54	20	329
83.3	55.0	33	32.8 44.8	120	24.6	NH	01	07	21	2006	5 4 67	43	329 1
83.3	60.0	33	34.5	120	45.5	NH	01	07	21	1546	78	6	0
83.3	70.0	33	14.7	121	26.5	NH	01	07	21	0818	63	1	26
83.3	80.0	32	54.6	122	08.0	NH	01	07	21	0247	71	3	4
83.3	90.0	32	34.7	122	48.9	NH	01	07	20	2100	79	7	4
83.3	100.0	32	14.7	123	30.0	NH	01	07	20	1505	76	1	8
83.3	110.0	31	54.8	124	10.2	NH	01	07	20	0746	70 71	1	28
86.7	33.0	33	53.3	118	29.4	NH	01	07	17	1045	96	12	2854
86.7	35.0	33	49.6	118	37.6	NH	01	07	17	1340	91	14	26
86.7	40.0	33	39.4	118	58.5	NH	01	07	17	1729	70	22	198
86.7	45.0	33	29.4	119	19.1	NH	01	07	18	0712	76	0	156
86.7	50.0	33	19.4	119	39.9	NH	01	07	18	1048	71	2	159
86.7	55.0	33	09.2	120	00.5	NH	01	07	18	1809	58	5	6
86.7	60.0	32	59.3	120	21.3	NH	01	07	18	2158	80	10	4
86.7	70.0	32	39.7	121	01.7	NH	01	07	19	0328	66	145	201
86.7	80.0	32	19.5	121	42.8	NH	01	07	19	0819	69	0	8
86.7	90.0	31	59.6	122	23.3	NH	01	07	19	1514	75	3	2
86.7	100.0	31	39.4	123	04.3	NH	01	07	19	2048	65	9	71
86.7	110.0	31	19.7	123	44.3	NH	01	07	20	0225	72	5	23
90.0	28.0	33	29.0	117	46.2	NH	01	07	17	0413	80	59	9107
90.0	30.0	33	25.7	117	54.3	NH	01	07	17	0136	89	11	34
90.0	35.0	33	15.2	118	15.3	NH	01	07	16	1908	74	65	64
90.0	37.0	33	11.1	118	23.3	NH	01	07	16	1303	95	56	1274
90.0	45.0	32	55.2	118	56.0	NH	01	07	16	0545	71	14	0
90.0	53.0	32	39.0	119	28.9	NH	01	07	16	0033	81	20	21
90.0	60.0	32	25.2	119	57.6	NH	01	07	15	1939	75	4	5
90.0	70.0	32	05.0	120	38.3	NH	01	07	15	1339	116	4	185
90.0	80.0	31	45.1	121	19.0	NH	01	07	15	0612	70	3	109

Line	Station		ude (N) min.	_	itude (W) min.	Ship Code		ow D mo.		Time (PST)	Volume Water Strained	Total Larvae	Total Eggs
90.0	90.0	31	24.8	121	59.7	NH	01	07	15	0010	73	11	119
90.0	100.0	31	05.2	122	39.9	NH	01	07	14	1808	69	23	13
90.0	110.0	30	45.7	123	20.3	NH	01	07	14	1133	75	1	35
90.0	120.0	30	25.4	123	59.8	NH	01	07	14	0120	93	21	12
93.3	26.7	32	57.4	117	18.3	NH	01	07	10	1125	54	1	1028
93.3	28.0	32	54.8	117	23.6	NH	01	07	10	1426	92	9	82
93.3	30.0	32	50.8	117	31.9	NH	01	07	10	1813	68	7	43
93.3	35.0	32	40.8	117	52.4	NH	01	07	10	2231	77	126	31
93.3	40.0	32	30.9	118	12.6	NH	01	07	11	0224	69	27	5
93.3	45.0	32	20.9	118	33.2	NH	01	07	11	0622	56	22	14
93.3	50.0	32	10.9	118	53.4	NH	01	07	11	1036	57	4	172
93.3	55.0	32	01.1	119	13.9	NH	01	07	11	1547	61	3	10
93.3	60.0	31	50.8	119	34.2	NH	01	07	11	1940	74	15	31
93.3	70.0	31	30.9	120	14.4	NH	01	07	12	0131	70	6	263
93.3	80.0	31	10.9	120	56.8	NH	01	07	12	0801	63	3	47
93.3	90.0	30	51.1	121	35.2	NH	01	07	12	1540	72	0	298
93.3	100.0	30	30.9	122	15.4	NH	01	07	12	2355	73	7	345
93.3	110.0	30	10.9	122	55.2	NH	01	07	13	0826	69 73	12	42
93.3	120.0	29	51.4	123	36.0	NH	01	07	13	1625	73	13	5
					Ca	ilCOFI C	ruise	01	10				
								•			•••		
		Y	1. (NT)	Y						Tr.	Volume	T . 1	TT . 1
T ima	Station		ide (N)	_	tude (W)	Ship	То	w Da	ite	Time	Water	Total	Total
Line	Station		ide (N) min.	_			То		ite	Time (PST)		Total Larvae	Total Eggs
		deg.	min.	deg.	tude (W) min.	Ship Code	To yr.	w Da mo.	ite day	(PST)	Water Strained	Larvae	Eggs
76.7	49.0	deg. 35	min. 04.5	deg.	tude (W) min. 46.2	Ship Code NH	To yr. 01	w Da mo.	day	(PST) 0918	Water Strained	Larvae 2	Eggs 612
76.7 76.7	49.0 51.0	deg. 35 35	min. 04.5 01.4	deg. 120 120	tude (W) min. 46.2 54.8	Ship Code NH NH	To yr. 01 01	w Da mo. 11 11	day 05	(PST) 0918 1235	Water Strained 69 76	Larvae 2 0	Eggs 612 2
76.7 76.7 76.7	49.0 51.0 55.0	deg. 35 35 34	min. 04.5 01.4 53.3	deg. 120 120 121	tude (W) min. 46.2 54.8 11.6	Ship Code NH NH NH	To yr. 01 01 01	w Da mo. 11 11	05 05 05 05	(PST) 0918 1235 1624	Water Strained 69 76 72	Larvae 2 0 0	Eggs 612 2 2
76.7 76.7 76.7 76.7	49.0 51.0 55.0 60.0	35 35 34 34	min. 04.5 01.4 53.3 43.4	deg. 120 120 121 121	tude (W) min. 46.2 54.8 11.6 32.7	Ship Code NH NH NH NH	To yr. 01 01 01 01	w Da mo. 11 11 11	05 05 05 05	0918 1235 1624 2013	Water Strained 69 76 72 71	2 0 0 0	Eggs 612 2 2
76.7 76.7 76.7 76.7 76.7	49.0 51.0 55.0 60.0 70.0	35 35 34 34 34	min. 04.5 01.4 53.3 43.4 23.5	deg. 120 120 121 121 122	tude (W) min. 46.2 54.8 11.6 32.7 14.5	Ship Code NH NH NH NH NH	To yr. 01 01 01 01	w Da mo.	05 05 05 05 05 06	0918 1235 1624 2013 0220	Water Strained 69 76 72 71 75	2 0 0 0 0	612 2 2 2 3 2
76.7 76.7 76.7 76.7 76.7 76.7	49.0 51.0 55.0 60.0 70.0 80.0	35 35 34 34 34 34	min. 04.5 01.4 53.3 43.4 23.5 03.0	deg. 120 120 121 121 122 122	46.2 54.8 11.6 32.7 14.5 55.7	Ship Code NH NH NH NH NH NH	To yr. 01 01 01 01	w Da mo. 11 11 11 11	05 05 05 05	0918 1235 1624 2013 0220 1510	Water Strained 69 76 72 71 75 77	2 0 0 0 0 0	Eggs 612 2 2 3 2 4
76.7 76.7 76.7 76.7 76.7 76.7 76.7	49.0 51.0 55.0 60.0 70.0 80.0 90.0	35 35 34 34 34	min. 04.5 01.4 53.3 43.4 23.5 03.0 43.3	deg. 120 120 121 121 122 122 123	46.2 54.8 11.6 32.7 14.5 55.7 38.0	Ship Code NH NH NH NH NH NH NH	To yr. 01 01 01 01 01 01	w Da mo.	05 05 05 05 05 06	0918 1235 1624 2013 0220 1510 1551	Water Strained 69 76 72 71 75	2 0 0 0 0	612 2 2 2 3 2
76.7 76.7 76.7 76.7 76.7 76.7	49.0 51.0 55.0 60.0 70.0 80.0	35 35 34 34 34 34 33	min. 04.5 01.4 53.3 43.4 23.5 03.0	deg. 120 120 121 121 122 122	46.2 54.8 11.6 32.7 14.5 55.7	Ship Code NH NH NH NH NH NH	To yr. 01 01 01 01 01 01 01	w Da mo. 11 11 11 11 11	05 05 05 05 06 06 06	0918 1235 1624 2013 0220 1510	Water Strained 69 76 72 71 75 77 53	2 0 0 0 0 0 0	Eggs 612 2 2 3 2 4 5 410
76.7 76.7 76.7 76.7 76.7 76.7 76.7 80.0	49.0 51.0 55.0 60.0 70.0 80.0 90.0 51.0	35 35 34 34 34 34 33 34	min. 04.5 01.4 53.3 43.4 23.5 03.0 43.3 26.9	deg. 120 120 121 121 122 122 123 120	tude (W) min. 46.2 54.8 11.6 32.7 14.5 55.7 38.0 31.1	Ship Code NH NH NH NH NH NH NH	To yr. 01 01 01 01 01 01 01 01 01	w Da mo. 11 11 11 11 11 11	05 05 05 05 06 06 06 05 08	0918 1235 1624 2013 0220 1510 1551 0413	Water Strained 69 76 72 71 75 77 53 80	2 0 0 0 0 0 0 0 0 16	Eggs 612 2 2 3 2 4 5 410 852
76.7 76.7 76.7 76.7 76.7 76.7 80.0 80.0	49.0 51.0 55.0 60.0 70.0 80.0 90.0 51.0 55.0	35 35 34 34 34 34 33 34 34	min. 04.5 01.4 53.3 43.4 23.5 03.0 43.3 26.9 17.7	deg. 120 120 121 121 122 122 123 120 120	tude (W) min. 46.2 54.8 11.6 32.7 14.5 55.7 38.0 31.1 48.0	Ship Code NH NH NH NH NH NH NH	To yr. 01 01 01 01 01 01 01 01 01	w Da mo. 11 11 11 11 11 11 11	05 05 05 05 06 06 06 06 08	0918 1235 1624 2013 0220 1510 1551 0413 0815	Water Strained 69 76 72 71 75 77 53 80 80	2 0 0 0 0 0 0 0 16 9	Eggs 612 2 2 3 2 4 5 410
76.7 76.7 76.7 76.7 76.7 76.7 80.0 80.0 80.0	49.0 51.0 55.0 60.0 70.0 80.0 90.0 51.0 55.0 60.0	35 35 34 34 34 34 33 34 34 34	min. 04.5 01.4 53.3 43.4 23.5 03.0 43.3 26.9 17.7 08.9	deg. 120 120 121 121 122 122 123 120 120 121	tude (W) min. 46.2 54.8 11.6 32.7 14.5 55.7 38.0 31.1 48.0 09.2	Ship Code NH NH NH NH NH NH NH NH NH	To yr. 01 01 01 01 01 01 01 01 01 01 01	w Da mo. 11 11 11 11 11 11 11	05 05 05 05 06 06 06 06 08 08	0918 1235 1624 2013 0220 1510 1551 0413 0815 0434	Water Strained 69 76 72 71 75 77 53 80 80 73	2 0 0 0 0 0 0 0 0 16 9	Eggs 612 2 2 3 2 4 5 410 852 6
76.7 76.7 76.7 76.7 76.7 76.7 80.0 80.0 80.0 80.0	49.0 51.0 55.0 60.0 70.0 80.0 90.0 51.0 55.0 60.0 70.0	35 35 34 34 34 33 34 34 34 33	min. 04.5 01.4 53.3 43.4 23.5 03.0 43.3 26.9 17.7 08.9 48.7	deg. 120 120 121 121 122 122 123 120 120 121 121	tude (W) min. 46.2 54.8 11.6 32.7 14.5 55.7 38.0 31.1 48.0 09.2 50.5	Ship Code NH NH NH NH NH NH NH NH NH	To yr. 01 01 01 01 01 01 01 01 01 01 01 01 01	w Da mo. 11 11 11 11 11 11 11 11	05 05 05 05 06 06 06 06 08 08	0918 1235 1624 2013 0220 1510 1551 0413 0815 0434 2234	Water Strained 69 76 72 71 75 77 53 80 80 73 74	2 0 0 0 0 0 0 16 9 9 0	Eggs 612 2 2 3 2 4 5 410 852 6 1
76.7 76.7 76.7 76.7 76.7 76.7 80.0 80.0 80.0 80.0 80.0 80.0 80.0	49.0 51.0 55.0 60.0 70.0 80.0 90.0 51.0 55.0 60.0 70.0 80.0 90.0 100.0	deg. 35 35 34 34 34 34 34 34 33 33 33 33	min. 04.5 01.4 53.3 43.4 23.5 03.0 43.3 26.9 17.7 08.9 48.7 28.7 08.2 49.3	deg. 120 120 121 121 122 122 123 120 121 121 122 123 123	tude (W) min. 46.2 54.8 11.6 32.7 14.5 55.7 38.0 31.1 48.0 09.2 50.5 32.2 13.3 54.6	Ship Code NH NH NH NH NH NH NH NH NH NH NH NH NH	To yr. 01 01 01 01 01 01 01 01 01 01 01 01	w Da mo. 11 11 11 11 11 11 11 11 11	05 05 05 06 06 06 06 05 08 08 07 07	0918 1235 1624 2013 0220 1510 1551 0413 0815 0434 2234 1649 0851 0352	Water Strained 69 76 72 71 75 77 53 80 80 73 74 75 67	2 0 0 0 0 0 0 16 9 9 0 0 0 0	Eggs 612 2 2 3 2 4 5 410 852 6 1 5
76.7 76.7 76.7 76.7 76.7 76.7 80.0 80.0 80.0 80.0 80.0 80.0 80.0 80	49.0 51.0 55.0 60.0 70.0 80.0 90.0 51.0 55.0 60.0 70.0 80.0 90.0 100.0 46.9	35 35 34 34 34 34 34 34 33 33 33 32 34	min. 04.5 01.4 53.3 43.4 23.5 03.0 43.3 26.9 17.7 08.9 48.7 28.7 08.2 49.3 16.6	deg. 120 120 121 121 122 122 123 120 121 121 122 123 123 120	tude (W) min. 46.2 54.8 11.6 32.7 14.5 55.7 38.0 31.1 48.0 09.2 50.5 32.2 13.3 54.6 01.5	Ship Code NH NH N	To yr. 01 01 01 01 01 01 01 01 01 01 01 01 01 0	w Da mo. 11 11 11 11 11 11 11 11 11 11	05 05 05 06 06 06 06 05 08 08 07 07 07	0918 1235 1624 2013 0220 1510 1551 0413 0815 0434 2234 1649 0851 0352 0014	Water Strained 69 76 72 71 75 77 53 80 80 73 74 75 67 64 86	2 0 0 0 0 0 0 16 9 9 0 0 0 0 10	Eggs 612 2 2 3 2 4 5 410 852 6 1 5 0 2 4504
76.7 76.7 76.7 76.7 76.7 76.7 80.0 80.0 80.0 80.0 80.0 80.0 81.8 83.3	49.0 51.0 55.0 60.0 70.0 80.0 90.0 51.0 55.0 60.0 70.0 80.0 90.0 100.0 46.9 40.6	35 35 34 34 34 34 34 34 33 33 33 32 34 34	min. 04.5 01.4 53.3 43.4 23.5 03.0 43.3 26.9 17.7 08.9 48.7 28.7 08.2 49.3 16.6 13.3	deg. 120 120 121 121 122 123 120 121 121 122 123 120 119	tude (W) min. 46.2 54.8 11.6 32.7 14.5 55.7 38.0 31.1 48.0 09.2 50.5 32.2 13.3 54.6 01.5 24.7	Ship Code NH NH NH NH NH NH NH NH NH NH NH NH NH	To yr. 01 01 01 01 01 01 01 01 01 01 01 01 01	w Da mo. 11 11 11 11 11 11 11 11 11 11 11 11 1	05 05 05 06 06 06 06 08 08 07 07 07 07 05 04	0918 1235 1624 2013 0220 1510 1551 0413 0815 0434 2234 1649 0851 0352 0014 1926	Water Strained 69 76 72 71 75 77 53 80 80 73 74 75 67 64 86 76	2 0 0 0 0 0 0 16 9 9 0 0 0 10 12	Eggs 612 2 2 3 2 4 5 410 852 6 1 5 0 2 4504 74
76.7 76.7 76.7 76.7 76.7 76.7 80.0 80.0 80.0 80.0 80.0 80.0 81.8 83.3 83.3	49.0 51.0 55.0 60.0 70.0 80.0 90.0 51.0 55.0 60.0 70.0 80.0 90.0 100.0 46.9 40.6 42.0	35 35 34 34 34 34 34 33 33 33 32 34 34 34 34	min. 04.5 01.4 53.3 43.4 23.5 03.0 43.3 26.9 17.7 08.9 48.7 28.7 08.2 49.3 16.6 13.3 10.5	deg. 120 120 121 121 122 122 123 120 121 121 122 123 120 119 119	tude (W) min. 46.2 54.8 11.6 32.7 14.5 55.7 38.0 31.1 48.0 09.2 50.5 32.2 13.3 54.6 01.5 24.7 30.2	Ship Code NH NH N	To yr. 01 01 01 01 01 01 01 01 01 01 01 01 01	w Da mo. 11 11 11 11 11 11 11 11 11 11 11 11 1	05 05 05 06 06 06 06 08 08 07 07 07 07 07 05 04	0918 1235 1624 2013 0220 1510 1551 0413 0815 0434 2234 1649 0851 0352 0014 1926 1728	Water Strained 69 76 72 71 75 77 53 80 80 73 74 75 67 64 86 76 80	2 0 0 0 0 0 0 16 9 9 0 0 0 10 12 55	Eggs 612 2 2 3 2 4 5 410 852 6 1 5 0 2 4504 74 771
76.7 76.7 76.7 76.7 76.7 76.7 80.0 80.0 80.0 80.0 80.0 80.0 81.8 83.3 83.3 83.3	49.0 51.0 55.0 60.0 70.0 80.0 90.0 51.0 55.0 60.0 70.0 80.0 90.0 100.0 46.9 40.6 42.0 51.0	35 35 34 34 34 33 34 34 33 33 32 34 34 34 34 33	min. 04.5 01.4 53.3 43.4 23.5 03.0 43.3 26.9 17.7 08.9 48.7 28.7 08.2 49.3 16.6 13.3 10.5 52.7	deg. 120 120 121 121 122 122 123 120 121 121 122 123 123 120 119 119 120	tude (W) min. 46.2 54.8 11.6 32.7 14.5 55.7 38.0 31.1 48.0 09.2 50.5 32.2 13.3 54.6 01.5 24.7 30.2 08.1	Ship Code NH NH N	To yr. 01 01 01 01 01 01 01 01 01 01 01 01 01 0	w Da mo. 11 11 11 11 11 11 11 11 11 11 11 11 1	05 05 05 06 06 06 06 07 07 07 07 07 04 04	0918 1235 1624 2013 0220 1510 1551 0413 0815 0434 2234 1649 0851 0352 0014 1926 1728 1123	Water Strained 69 76 72 71 75 77 53 80 80 73 74 75 67 64 86 76 80 68	2 0 0 0 0 0 0 16 9 9 0 0 0 10 12 55 0	Eggs 612 2 2 3 2 4 5 410 852 6 1 5 0 2 4504 74 771 509
76.7 76.7 76.7 76.7 76.7 76.7 80.0 80.0 80.0 80.0 80.0 81.8 83.3 83.3 83.3	49.0 51.0 55.0 60.0 70.0 80.0 90.0 51.0 55.0 60.0 70.0 80.0 90.0 100.0 46.9 40.6 42.0 51.0 55.0	deg. 35 35 34 34 34 33 34 34 34 33 33 32 34 34 34 34 33 33	min. 04.5 01.4 53.3 43.4 23.5 03.0 43.3 26.9 17.7 08.9 48.7 28.7 08.2 49.3 16.6 13.3 10.5 52.7 44.5	deg. 120 120 121 121 122 122 123 120 120 121 121 122 123 120 119 119 120 120	tude (W) min. 46.2 54.8 11.6 32.7 14.5 55.7 38.0 31.1 48.0 09.2 50.5 32.2 13.3 54.6 01.5 24.7 30.2 08.1 24.6	Ship Code NHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH	To yr. 01 01 01 01 01 01 01 01 01 01 01 01 01	w Da mo. 11 11 11 11 11 11 11 11 11 11 11 11 1	05 05 05 06 06 06 06 05 08 07 07 07 07 07 04 04 04	0918 1235 1624 2013 0220 1510 1551 0413 0815 0434 2234 1649 0851 0352 0014 1926 1728 1123 0804	Water Strained 69 76 72 71 75 77 53 80 80 73 74 75 67 64 86 76 80 68 72	2 0 0 0 0 0 0 16 9 9 0 0 0 10 12 55 0 0 0	Eggs 612 2 2 3 2 4 5 410 852 6 1 5 0 2 4504 74 771 509 117
76.7 76.7 76.7 76.7 76.7 76.7 80.0 80.0 80.0 80.0 80.0 80.0 81.8 83.3 83.3 83.3	49.0 51.0 55.0 60.0 70.0 80.0 90.0 51.0 55.0 60.0 70.0 80.0 90.0 100.0 46.9 40.6 42.0 51.0	35 35 34 34 34 33 34 34 33 33 32 34 34 34 34 33	min. 04.5 01.4 53.3 43.4 23.5 03.0 43.3 26.9 17.7 08.9 48.7 28.7 08.2 49.3 16.6 13.3 10.5 52.7	deg. 120 120 121 121 122 122 123 120 121 121 122 123 123 120 119 119 120	tude (W) min. 46.2 54.8 11.6 32.7 14.5 55.7 38.0 31.1 48.0 09.2 50.5 32.2 13.3 54.6 01.5 24.7 30.2 08.1	Ship Code NH NH N	To yr. 01 01 01 01 01 01 01 01 01 01 01 01 01 0	w Da mo. 11 11 11 11 11 11 11 11 11 11 11 11 1	05 05 05 06 06 06 06 07 07 07 07 07 04 04 04 04	0918 1235 1624 2013 0220 1510 1551 0413 0815 0434 2234 1649 0851 0352 0014 1926 1728 1123	Water Strained 69 76 72 71 75 77 53 80 80 73 74 75 67 64 86 76 80 68	2 0 0 0 0 0 0 16 9 9 0 0 0 10 12 55 0	Eggs 612 2 2 3 2 4 5 410 852 6 1 5 0 2 4504 74 771 509

TABLE 1. (cont.)

								_			Volume	~ .	
. .	a		ide (N)	_	tude (W)	Ship		w D		Time	Water	Total	Total
Line	Station	deg.	min.	deg.	min.	Code	yr.	mo.	day	(PST)	Strained	Larvae	Eggs
83.3	80.0	32	54.6	122	08.0	NH	01	11	03	1535	65	0	5
83.3	90.0	32	34.7	122	49.1	NH	01	11	03	0804	73	1	17
83.3	100.0	32	14.6	123	29.7	NH	01	11	03	0315	84	1	4
83.3	110.0	31	54.3	124	10.0	NH	01	11	02	2121	80	2	18
86.7	33.0	33	53.2	118	29.0	NH	01	10	31	1130	77	20	1375
86.7	35.0	33	49.3	118	37.5	NH	01	10	31	1401	82	0	21
86.7	40.0	33	40.0	118	58.2	NH	01	10	31	1743	65	3	265
86.7	45.0	33	29.6	119	18.8	NH	01	10	31	2132	66	0	337
86.7	50.0	33	19.7	119	39.4	NH	01	11	01	0044	75	0	119
86.7	55.0	33	09.6	119	59.9	NH	01	11	01	0445	69	0	9
86.7	60.0	32	59.8	120	20.3	NH	01	11	01	0809	64	1	2
86.7	70.0	32	39.5	121	01.8	NH	01	11	01	1512	74	0	6
86.7	80.0	32	19.6	121	42.4	NH	01	11	01	2041	69	2	7
86.7	90.0	31	59.6	122	23.3	NH	01	11	02	0230	76	9	2
86.7	100.0	31	40.2	123	04.2	NH	01	11	02	0757	66	4	24
86.7	110.0	31	19.7	123	44.5	NH	01	11	02	1520	90	5	257
90.0	28.0	33	28.8	117	45.8	NH	01	10	31	0459	89	26	291
90.0	30.0	33	25.0	117	54.5	NH	01	10	31	0300	66	11	66
90.0	35.0	33	15.1	118	15.0	NH	01	10	30	2259	85	13	483
90.0	37.0	33	11.1	118	23.2	NH	01	10	30	2017	87	38	208
90.0	45.0	32	55.1	118	56.1	NH	01	10	30	1440	77	1	4
90.0	53.0	32	38.9	119	29.6	NH	01	10	30	0759	103	1	23
90.0	60.0	32	24.9	119	57.7	NH	01	10	30	0326	80	0	144
90.0	70.0	32	05.1	120	38.3	NH	01	10	29	2115	75	0	43
90.0	80.0	31	45.1	121	18.9	NH	01	10	29	1520	76	0	86
90.0	90.0	31	24:9	122	0.00	NH	01	10	29	0807	78	0	6
90.0	100.0	31	05.1	122	40.0	NH	01	10	29	0315	81	19	90
90.0	110.0	30	45.1	123	19.9	NH	01	10	28	2106	87	1	42
90.0	120.0	30	25.1	123	59.9	NH	01	10	28	1536	82	1	4
93.3	26.7	32	57.4	117	18.3	NH	01	10	25	1101	86	7	15
93.3	28.0	32	54.8	117	23.7	NH	01	10	25	1353	89	0	62
93.3	30.0	32	50.8	117	31.9	NH	01	10	25	1649	68	1	80
93.3	35.0	32	40.8	117	52.4	NH	01	10	25	2056	73	0	1452
93.3	40.0	32	30.8	118	12.8	NH	01		26	0100	76	0	18
93.3	45.0	32	21.1	118	33.4	NH	01	10	26	0510	80	0	3
93.3	50.0	32	10.9	118	53.1	NH	01	10	26	0802	83	0	24
93.3	55.0	32	00.8	119	14.0	NH	01	10	26	1423	79 7 0	0	106
93.3	60.0	31	50.8	119	34.3	NH	01	10	26	1827	79	. 0	19
93.3	70.0	31	30.8	120	14.8	NH	01	10	26	2358	82	0	144
93.3	0.08	31	10.9	120	54.7 25.4	NH	01	10	27	0806	82	0	51
93.3	90.0	30	50.8	121	35.4	NH	01	10	27	1549	77 70	0	32
93.3	100.0	30	30.8	122	15.5	NH	01	10	27	2133	79 75	1	97 12
93.3	110.0	30	10.9	122	55.2 35.0	NH	01	10	28	0315	75 84	1	13
93.3	120.0	29	51.2	123	35.0	NH	0,1	10	28	0816	84	2	15

TABLE 2. Pooled occurrences of fish larvae taken in Manta net tows on the 2001 CalCOFI survey.

Rank	Taxon	Occurrences
1	Cololabis saira	73
2	Engraulis mordax	72
3	Sebastes spp.	37
4	Sardinops sagax	36
5	Hypsoblennius jenkinsi	17
6	Trachurus symmetricus	14
6	Scorpaenichthys marmoratus	14
8	Ceratoscopelus townsendi	13
9	Vinciguerria lucetia	11
9	Leuresthes tenuis	11
11	Tetragonurus cuvieri	10
12	Stenobrachius leucopsarus	9
12	Chromis punctipinnis	9
12	Hypsoblennius gilberti	9
15	Scomber japonicus	7
15	Sebastes diploproa	7
17	Citharichthys sordidus	6
17	Oxyjulis californica	6
19	Atherinopsis californiensis	5
19	Hypsoblennius spp.	5
19	Lampadena urophaos	5
19	Citharichthys stigmaeus	5
23	Triphoturus mexicanus	4
23	Cyclothone signata	4
23	Sebastes jordani	4
23	Nannobrachium spp.	4
23	Medialuna californiensis	4
28	Icichthys lockingtoni	3
28	Nannobrachium ritteri	3
28	Diaphus spp.	3
28	Sphyraena argentea	3
28	Aristostomias scintillans	3
28	Merluccius productus	3
34	Coryphopterus nicholsii	2
34	Paralabrax spp.	2
34	Tactostoma macropus	2
34	Neoclinus stephensae	2
34	Peprilus simillimus	2
34	Diogenichthys atlanticus	2
34	Bathylagus ochotensis	2
34	Xenistius californiensis	2
34	Brama japonica	2
34	Pleuronichthys coenosus	2
34	Oxylebius pictus	2
34	Hexagrammos decagrammus	2
34	Ophiodon elongatus	2
34	Microstomus pacificus	2
48	Leuroglossus stilbius	1
48	Bathylagus wesethi	1
. •	24, 146	1

TABLE 2. (cont.)			
Rank	Taxon		Occurrences
48	Stomias atriventer		1
48	Cyclothone spp.		1
48	Neoclinus blanchardi		1
48	Neoclinus spp.		1
48	Sebastes paucispinis		1
48	Symbolophorus californiensis		1
48	Čataetyx rubrirostris		1
48	Oneirodes spp.		1
48	Girella nigricans		1
48	Seriphus politus		1
48	Cheilopogon pinnatibarbatus		1
48	Fodiator acutus		1
48	Genyonemus lineatus		1
48	Sebastes aurora		1
48	Leptocottus armatus		1
48	Hygophum reinhardtii		1
	, ,	Total	465

TABLE 3. Pooled raw counts of fish larvae taken in Manta net tows on the 2001 CalCOFI survey.

Rank	Taxon	Count
1	Sardinops sagax	2245
2	Engraulis mordax	1044
3	Leuresthes tenuis	644
4	Sebastes spp.	280
5	Cololabis saira	267
6	Hypsoblennius jenkinsi	127
7	Atherinopsis californiensis	67
8	Chromis punctipinnis	64
9	Vinciguerria lucetia	42
10	Ceratoscopelus townsendi	39
11	Scorpaenichthys marmoratus	36
12	Sebastes diploproa	28
13	Scomber japonicus	22
14	Sebastes jordani	18
14	Hypsoblennius gilberti	18
14	Trachurus symmetricus	18
17	Lampadena urophaos	17
18	Hypsoblennius spp.	16
19	Oxyjulis californica	14
20	Stenobrachius leucopsarus	11
21	Tetragonurus cuvieri	10
22	Citharichthys stigmaeus	8
23	Citharichthys sordidus	6
23	Medialuna californiensis	6
23	Sphyraena argentea	6
26	Cyclothone signata	5
27	Peprilus simillimus	4
27	Triphoturus mexicanus	4
27	Nannobrachium spp.	4
27	Hexagrammos decagrammus	4
27	Merluccius productus	4
32	Symbolophorus californiensis	3
32	Nannobrachium ritteri	3
32	Aristostomias scintillans	3
32	Bathylagus ochotensis	3
32	Diaphus spp.	3
32	Microstomus pacificus	3
32	Icichthys lockingtoni	3
32	Brama japonica	3
32	Ophiodon elongatus	3
41	Fodiator acutus	2
41	Pleuronichthys coenosus	2
41	Neoclinus stephensae	2
41	Tactostoma macropus	2
41	Neoclinus spp.	2
41	Coryphopterus nicholsii	2
41	Leptocottus armatus	2
41	Oxylebius pictus	2
41	Xenistius californiensis	2

TABLE 3. (cont.)		G-1-1-1-1
Rank	Taxon	Count
41	Paralabrax spp.	2
41	Diogenichthys atlanticus	2
52	Genyonemus lineatus	I
52	Bathylagus wesethi	1
52	Leuroglossus stilbius	1
52	Cyclothone spp.	1
52	Cataetyx rubrirostris	1
52	Cheilopogon pinnatibarbatus	1
52	Stomias atriventer	1
52	Seriphus politus	1
52	Neoclinus blanchardi	1
52	Girella nigricans	1
52	Sebastes paucispinis	1
52	Sebastes aurora	1
52	Hygophum reinhardtii	1
52	Oneirodes spp.	1
<i>32</i>	Total	5141

TABLE 4. Numbers of fish larvae taken in Manta net tows on the 2001 CalCOFI survey, listed by taxon, station, and month. Numbers of larvae are expressed as larvae per 100 cubic meters of water filtered. Unoccupied stations are indicated by a dash.

!	Dec.	•	2	•	,	1	ı	•	ı	Ì	ı	ı	1	,	ı	ı	•		ı		•	ı	ı	:	ı		ı		ı :	; ;	
;	Nov.	0.0	0.0	0.0	0.0	0:0	0.0	0.0	0.0	0:0	0:0	0.0	0.0	0.0	0.0	9:0	9.0	? '	00	0.0	9.0	0.0	0.0	>			ı	ı		: 1	
	Oct.	1	1 1		•					ı	ı			i 1	; ;	1	1 1		? '	1 1	l i	1 1	ı	0	0.0	0.0	0.0	0.0). O	0.0	
Č	Sep.	ı			•	•	•	,	,	ı	,	•	•	1		,	ı		ı		: 4		,	ļ			ı		ı ı	ş	
:	Aug.	,		• •	,	1	,	1	,	•	1	,	1	,	,	1	1	1	1	1	ì	. 1	1	•	ı	1	,	,		ı	
<u>.</u>	3.4	1.7	0.0	0:0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.7	0.0	0.0	0.0	0.0	0.0	10.6	0.0	0.0	0.0	0.0	0.0	7.7	0.0	0.0	0.0	5.4	0.0	0.0	
s sagax I	aunc	ı			,		,	•	ı	1	•	,	,	,	•	ı	,	1	,	•				ı	•	ı				1	
Sardinops sagax	INIA)	1	ŧ	ŧ	ı	ι	ı	ı	ı	٠	,	,	,	,	,	1	,	,	1	1	1	ı	1	1	1	1	•	,	,	ı	
A 22.	7. 1.4	0.0	36.9	38.4	7.1	53.6	6.4	82.0	6.7	2.4	0.0	0.0	14.4	53.4	71.2	6.0	13.4	0.0	106.7	64.6	197.8	88.1	8.0	0.0	47.8	111.7	8.1	1.9	344.3	28.9	
Mar			,		1	1	ı	1	•	•	1	1	1	1	ı	1	į	1	ì	į	ı		,	,	1	ı	1	ı	J	i	
T. Q.		,	•	,			•	,	•	1	,	•	•	ı		•	1		•		,	ı	•	•	ı	•	ı	,	,	ı	
	0.0				-				-	_	_		_	_	_	_	_	_	_	_		_	_	_	_	_	_	_	_	_	
Station	76.7 55.0	76.7 60.0	76.7 70.0	76.7 80.0	76.7 90.0	0.09 0.08	80.0 70.0	80.0 80.0	80.0 90.0	80.0 100.0	83.3 51.0	83.3 55.0	83.3 60.0	83.3 70.0	83.3 80.0	83.3 100.0	83.3 110.0	86.7 40.0	86.7 55.0	86.7 60.0	86.7 70.0	86.7 80.0	86.7 90.0	90.0 28.0	0.09 0.06	90.0 70.0	0.08 0.06	93.3 35.0	93.3 40.0	93.3 45.0	

ont.) July 0.0 0.0	Sardinops sagax (cont.) May June July - 0.0
0	
u	Engraulis mordax
	May June
	,
	,
	,

TABLE 4. (cont.)

	ì				Engraulis n	Engraulis mordax (cont.)	Ŧ					
Station	Jan.	Feb.	Mar.	Apr.	Mav	June	Inly	Ang	Cen	+00	M	ć
	0.0	,	1	167.7	٠,		0.7	· sar	och:	; ; ;	IAOV.	Dec.
90.0 37.0	0.0	•	ı	0.0	,	,	. · ·	ı	1	11.1	•	r
	0.0	ı	ı	3.1	,		0.0	. ,	ı	50.4	ı	1
0.09 0.06	0.0	1	1	0.0	ı	ı	» «		ı	0.0	ı	I
93.3 26.7	0.0	1	1	0.7	ı	•	9.0	ı	ı	0.0		1
93.3 28.0	0.0	1	1	0.0	1	,	0.0	ı	1	0.0	1	1
93.3 30.0	0.0	t	•	2.2	ı	ı) (ı	ı	0.0	,	ı
	0.0	1		16.0	1	ı l	7.7	1	•	0.0	ı	ı
	0.0	1	ı	0.0		ı	†.0°.	,	•	0.0	ı	ı
93.3 60.0	1	1	1	0.5	1 1	1 1	7.4 7.4	1 1	1 1	0.0	1 1	1 1
					,) ;	•	•
Ofotion	<u>;</u>	Ļ	,	-	Bathylagus	ochotensis						
_	Jan.	reb.	Mar.	Apr.	May June	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
70.7	0.0	•		1.4	•	,		1	,	1	0.0	,
	0.0	t	•	0.7	,	,		•	ı	1	0.0	
:	,	,			Bathylagu	ıs wesethi					?	1
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	0.0		•	0.7		•			٠,	0.0	,	,
					Leurogloss	us stilbius						
Station	Jan.	Feb.	Mar.	Apr.	May June	June	July	Aug.	Sep.	Oct.	Nov	Dec
90.0 37.0	0.7	ı	•	0.0	t	ı	0.0	,	٠,	0.0	:	; ;
,					Cyclotho	me spp.						
Station	Jan.	Feb.	Mar.	Apr.	May June	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
0.00	7.0	ı		0.0	•		0.0	•		0.0	ı	
i					Cyclothon	e signata						
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep	Oct	Nov	Dec
86.7 110.0	9.0	•	1	0.0	ı	1	0.0	Ď ,		; '	. 00	3
90.0 90.0	0.0		ı	0.7	ı	•	0.0	,	,	0 0	? '	•
90.0 120.0	0.0	,	1	0.0	,		6.0	ı	ı	0.0		1
93.3 60.0		•	1	1.1	,	1	0.0	1		0:0	ı	ı
							9	ı	ı	0.0		1
Chation	; <u>.</u>	ŗ	,		Vinciguerria Iucetia	ia Iucetia						
Station 86.7 90.0	Jan.	reb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
2:00	>:		Í	0.0		1	0.0	ı	•		8.0	•

TABLE 4. (cont.)

	Dec.		ı	•		r	1	ı	,	•	•		Dec.	ı		Dec.	•	1		Dec.	1	,	ı		Dec.	•	•	•	•		1	ı	1
	Nov.	ı	1	1	ı	ı	1	ı	,	ı	ı		Nov.	ı		Nov.	0.0	,		Nov.	1		1		Nov.	•	1	ı	1	1	1	•	1
	Oct.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		Oct.	0.0		Oct.	ı	0.0		Oct.	0.0	0.0	0.0		Oct.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Sep.	1	1	ı	1	ı	•	1	,	•	,		Sep.	٠,		Sep.	t	ı		Sep.	٠,	•	1		Sep.	ı	į	ı	1	1	1	ı	•
	Aug.		ı	•	•	1	•	1	•		,		Aug.) ,		Aug.	1	ı		Aug.	١,	•	1		Aug.	1	•	1		1	1	ı	•
<u></u>		1.2	0.7	5.8	0.0	0.0	16.7	2.8	2.9	0.7	0.7		July	0.0		July	9.0	0.7	s	July	0.0	0.0	0.0	di.	July	0.7	13.7	6.0	0.7	1.3	0.0	3.4	0.7
u <i>cetia</i> (con	June	,	•	,		,	ı	•	•		•	triventer	June	ı	ı macropus	June	ı	ı	ıs scintillan	June	,	,	1	us townsen	June		•	1	•	•		1	
⁄inciguerria lucetia (cont.)	May	ı	t	1	1	ı	1	•	•	ı	•	Stomias	May	` '	Tactostoma	May			Aristostomias scintillans	May	•	ı	1	Ceratoscopel	May	1	ı	1	ı	•	ı	•	•
-2		0.0	0.0											0.0											Apr.								
	Mar.	ı	:	1	,	•		1	,				Mar.			Mar.	ı	ı		Mar.	ı	ı			Mar.	1	•	1	ı	1	1	1	,
	Feb.	•	,		,			•	,	,	•		Feb.	1		Feb.		•		Feb.	•	ı	1		Feb.	•	1	•	•	ı	ı	,	•
	Jan.	0.0	0.0	0.0	1.2	0.7	0.0	0.0	0.0	0.0	0.0		Jan.	0.7		Jan.	0.0	0.0		Jan.	0.0	0.0	0.0		Jan.	0.0	0.0	0.0	9.0	0.0	0.0	2.1	0.0
	Station		0.08 0.06			90.0 110.0							Station	90.0 110.0		Station	86.7 100.0	93.3 100.0		Station	0.06 0.06	90.0 100.0	93.3 120.0		Station	0.06 0.06	90.0 100.0	90.0 120.0	93.3 70.0	93.3 80.0	93.3 90.0	93.3 110.0	93.3 120.0

TABLE 4. (cont.)

	Dec	Dec.		,	•		200	Dec.	ı	ı	,		,	ı		20	LY.	ı	1	,	•		٤	Dec.	1	ı	1		Dec	3	1	ı		ı		1	1	,
	Now	. 00.	0.0	0.0	•		Nov	0 0	6.0		,		ı			Nox	. 00	0.0	1	0.0	1			. 000	0.0	0.0	ı		Nov	. 00	0:0	2.0	ı		1		1	1
	Oct	:	t	, с	0.0		+		ı	0.0	0.0	0.0	0.0	9.) t	; (4:		0.0	1	0.0		700	i.	1	, 6	6.0		Oct	; ,		· •	0.0	0.0	0.0	0.0	0.0	0.0
	Sep	1	,	ı i			Sen		1		,	,	1	ı		Sen			ı	1	1		Cen	ido.	ı	• 1	ı		Sep.	Ļ,	1	:	ì	ı	1	1	ı	
	Aug.	D .	ı				Ang	io '	ř	ı	ı		1			Aug		,	ı	ı	ı		Αυσ	· 9m.	!	. ,	ı		Aug.	, '	ı	i	ı	•	,	i	ŀ	
				0.0			-						9.9) O		S								0.0		
es spp.	June	ı	,	1		ı urophaos	June				,	ı	,		hium spp.	June	•	ı		ı	1	ium ritteri	June		ı	,		leucopsaru	June	1	,	ı	ı		ı	ı	1	
Diaphu	May	٠,	ı		,	Lampadena	May	٠,		•	,	•	,		Nannobrac	May	,	,			ı	Nannobrachium ritteri	Mav	` '	,	,		Stenobrachius leucopsarus	May	•	,	,	,	ı		! :	ľ	
				0.8									0.0													0.0										0:0		
	Mar.	ı	1			,	Mar.	•	1			1	ı			Mar.	1	1	,		1		Mar.	,	ı	•			Mar.	1	•	•	1	ı	ı	ı	1	ı
	Feb.	ı	1	1		, -	reb.	,	ı				ı			Feb.	1	,	,		J		Feb.	ı	•	•			Feb.	ı	1	i	•	3	ı	•	1	
	Jan.	0.0	0.0	0.0									0.0			Jan.							Jan.	0.0		0.0			Jan.	1.5	0.7	0.0	0.0	0.0	0.7	0.0	00	<u> </u>
	Station	76.7 80.0	83.3 90.0	86.7 35.0		Chatian	Station	86.7 110.0	90.0 100.0	03 3 80 0	0.00 6.66	93.3 110.0	93.3 120.0			Station	83.3 60.0	86.7 40.0	86.7 55.0	000 000	0.00		Station	83.3 51.0	86.7 70.0	93.3 26.7			Station	83.3 51.0	83.3 60.0	86.7 33.0	86.7 35.0	86.7 45.0	90.0 28.0	90.0 80.0	93.3 35.0) - - - - -

Nov. Nov. 0.0 0.0 0.0 Nov. 0.0 Nov. 0.9 Nov. 0.0 0.0 Nov. 0.0 0.0 Nov. 2.4 Oct. Oct. Oct. . Oct. Oct. Oct. 0.0 Sep. Sep. Sep. Sep. Sep. Sep. Sep. Aug. Aug. Aug. Aug. Aug. Aug. Aug. July 0.0 0.0 0.0 July 0.0 0.0 0.0 0.0 July 0.0 July 0.0 0.0 July 0.0 Symbolophorus californiensis May June July - 0.0 July 0.0 0.7 Diogenichthys atlanticus
May June J Atherinopsis californiensis
May June Hygophum reinhardtii May June riphoturus mexicanus Merluccius productus May June Cataetyx rubrirostris Oneirodes spp.
May June June -May May Apr. 0.0 Apr. 0.0 0.0 Apr. 0.7 Apr. 0.0 Apr. 0.0 0.7 0.0 Apr. 0.7 Apr. 0.0 0.0 0.0 0.0 0.0 Apr. 0.0 0.7 0.0 Mar. -Mar. -Mar. Mar. Mar. Mar. -Mar. Feb. Feb. -Feb. Feb. Feb. Feb. -Feb. -Jan. 0.7 0.0 1.5 Jan. 0.0 Jan. 0.0 Jan. 7.2 8.7 8.7 2.0 2.0 23.7 Jan. 0.0 Jan. 0.0 TABLE 4. (cont.) Station 86.7 110.0 Station 80.0 100.0 86.7 110.0 90.0 110.0 93.3 120.0 76.7 49.0 80.0 70.0 83.3 51.0 Station 83.3 51.0 83.3 40.6 83.3 42.0 86.7 33.0 90.0 28.0 Station 90.0 90.0 Station 80.0 51.0 90.0 100.0 Station Station 36

Dec.

Dec. - Dec.

Dec.

Dec.

Dec.

Dec.

TABLE 4. (cont.)

	Dec							ı	,		1		í	Dec.			• 1	•	1								: :			•	•	•	ı		•
	Nov	0.0	? '			, 0	0.0	?	1 1		ı		;		9 6	0.0	0.0	0.0) «	0.0	0.0	0.0	0:0	0.0	0.0	0.0	0.0	00	9 -	? '	ı	00	0.0	0.0	0.0
	Oct	,	00	0.0	0.0	? :		0.0	0:0	0.0	0.0			OCT.				ı ı			,	,	ı		ı	ı		1	ı	0.0	0.0	} '	1	,	1
	Sep.	<u>.</u>		,	ı	ı	•	1			ı		5	oep.		. :		ı	•	•	,		,	,	ı	1	1	Ī	1	,	ı	,	ı	1	•
	Aug.	,	•	,	. 1	,	1	,	ı	1	•		· · ·	.gnv	•	•	•	j	•	•	,	ı	,	,	ı	ı	ı	ı	ı	1	ı	•	,	•	•
	July	0.0	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.8		T., lr.	July 4.3	80	5.5	6.1	2.1	0.0	: =	1.3	0.8	9.0	0.8	9.0	0.7	5.6	0.8	0.7	1.0	1.8	0.7	1.2	4.8	2.0
es tenuis	June	,	1		•	ı	1	•	,	,	ı	•	rs saira Ima	June -		,			•	1	,	,	1		,	,	,	•	•			1	•	1	•
Leuresth	May	•	•	ı	,	ı	•	,	,	•	r	1.1.1.1	May	,	,	•	,		,	,	ı		ı		,	1	•	ı	ı	•	i	,	ı	•	1
	Apr.	8.0	2.2	7.0	10.5	61.3	1.5	454.8	0.8	0.0	0.0		Anr	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0
	Mar.	1	1	i	1	1	ı	•	1	1	•		Mar	1	1	ı	ı	ı	ŀ	ı	ı	ı	•	ı	1	ı	ŀ	,	ı	ı	,	ı	ı	ı	
	Feb.	1	1	1	•	1	ı	,	ı		ı		Feb	,	ı			1		1	1	•	1			ı	,	ı	ı	ı	1	•	1		•
	Jan.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	9.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	
	tation	7 51.0	86.7 33.0	7 35.0	7 40.0	7 50.0	7 55.0	0 28.0	0 35.0	3 26.7	3 28.0		tation	7 51.0	7 55.0	7 70.0	0.08 7	0.06 /	0.55.0	80.0 80.0	0.06 0	0 100.0	3 42.0	3 60.0	3 70.0	3 80.0	3 90.0	3 100.0	3 110.0	7 33.0	7 35.0	20.0	7 55.0	0.09 /	70.0
	S	76.	86,	86.	86.	86,	86.	90.	90.	93	93		S	76.	76,	76.	76.	76.	80.	80.	80.0	80.	83	83.	83.	83	83	83	83	86.	.98	.98	.98	86.	86.

TAB	TABLE 4. (cont.)	ont.)				Cololabis	Cololatic sains (cont.)	,					
Ś	Station	Jan.	Feb.	Mar.	Apr.	May	June June		Aug.	Sep.	Oct	Nov	Dec.
86.7		0.0	•	•	0.0	۲,	1		b ,		;	1.4	,
86.7				ı	8.0	1	ı		į	ı	,	4.5	1
86.7	7 100.0		•	•	2.3	ı	,	4.5	1	ı	ı	1.3	ı
86.7				•	0.0	,	1	3.6	ı	1		1.8	1
90.0				•	6.0	1	•	1.6	,	ı	0.0	ı	1
90.0			1	ı	0.0	•	•	2.7	1	ı	0.0	1	1
90.0	35.0	0.0	•	1	0.8	•	1	11.0	,	•	0.0	1	1
90.0				,	0.0	ı	,	6.7	ı	,	1.7	ı	1
90.0			•	•	0.0	1	•	6.6		•	0.8	,	1
90.0			ı	,	0.0	ı		14.5	ı	,	0.0	ı	
90.				•	0.0	ı	•	2.3	1	,	0.0	1	,
90.0					0.0	ı	•	3.5	ſ	,	0.0	ı	ı
90.0			•	ı	0.0	r	•	0.7	ſ	,	0.0	,	,
90.			1	1	0.0	,		1.5	1	ı	0.0	ı	r
90.0					0.0	ŧ	,	0.7	ı	1	15.4	ı	4
			•	ı	0.0	,		0.0	ſ	ı	6.0	ı	,
2000			1	1	0.0	ſ		6.0	ſ		0.8	ı	
93.2			,	ı	0.0	,	,	4.6	í	Ī	0.0	ı	1
93.2			•	1	0.0	t	1	2.0	,		0.0		
93.3			•	i	6.0	,	•	9.3	,	•	0.0	,	1
93.			•	1	0.0	ı	•	6.2	,	ı	0.0	ı	
93.5			•	ı	0.0	ı		11.7	,	•	0.0	1	
93.2			•	ı	0.0	ı	,	2.3	,	1	0.0	í	,
93.5		•	:	1	0.0	,		1.8	,	1	0.0	1	
93.			•	1	0.0	•	,	0.7	,	ı	0.0	1	•
93.3		0.0	•	ı	0.0	ı	ı	1.5		•	0.0	,	
93.			ı	ı	0.0	,	•	0.0	,	1	0.7	ı	,
93					0.0	,	1	0.0	,	•	1.7	,	•
					•	heilopogon p	innatibarba	snn					
S	Station	Jan.	Feb.	Mar.		May June Ju	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	28.0		•	ı	0.0	,	ı	0.8	٠,	٠,	0.0	1	•
						Fodiato	r acutus						
Sta 90.0	Station	Jan.	Feb.	Mar.	Apr.	May	May June	July	Aug.	Sep.	Oct.	Nov.	Dec.
;	7.07				>.	,	•	1.0	,	1	0.0		,

Sta 76.7	767	76.7	7.0.7	/0/	80.0	80.0	81.8	83.3	83.3	83.3	83.3	83.3	86.7	86.7	86.7	∞ (2.5	86.7	90.0	90.0	20.0	5.55	93.3	95.3	93.3	Ç	76.7 51.0	Stat	76.7 51.0	76.7	80.0	83 3
Station 6.7 49.0	51.0	55.0	0.00	00.0	55.0	70.0	46.9	40.6	42.0	51.0	55.0	0.09	33.0	35.0	40.0	45.0	50.0	55.0	35.0	53.0	00.0	7.07	35.0	55.0	0.09	. <u>.</u>	51.0	ion	51.0	55.0	55.0	42.0
																										10)411. 0.6	Test of the second	0.0	1.7	0.0	
Feb.			ı	•	1	•		•		•	•		,	•		•	ı	ī	•		•					ti Ti	re0.	H A			1	
Mar.				•	,	,	,		,	,	,	•	,	ı	1	,	•	1	,	•		,	•	,	1	;	Mar. -	Mar		ı		
Apr.	0.0	8.0	16.2	0.7	0.0	1.4	0.0	5.4		. × ×	2.2	2.5	1.5	13.1	1.4	1.9	41.3	1.5	0.0	3.8	2.9	0.0	1.9	0.7	1.1		Apr. 0.0	•	dv 0 0	0:0	0.0	0.0
May			•	,	,	,	1		•				, ,		,		,	,	•		,	,	,	,	,	Sebaste	May -	Sebastes	May	l	ı	•
June	•	1	ı	•	,	1		ı	ı					,	,	•		,			•	•		•		s aurora	May June	diploproa	June	•		
July	0.7	0.0	0.0	0.0	0.7		0.0	0.0	0.0	0.0	0.0	/ 0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		July 0.0	,	July	12.9	0.0	0.0
Aug.	1	1	,	1	ı		,	,	,	,	•		•				ı	,	,		ı	ı	,	,	ı		Aug.		Aug.	ı		,
Sep.	1	1	•	,		,		1			ı			,	ı		ı	,	,	,	•	,	,	,	•		Sep.		Sep.		ı	
Oct.	,	,	•		ı ·		1	ı	•	,			' 6	0.0	0.0	0.0	3 '		0.0	0.0	0.0	0.0	0.0	0.0	0.0		Oct.		Oct.	ı		
Nov.	0.0	0.0	0.0	0:0). -	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1				0.0	0.0		,				,		Nov. 0.0		Nov.	0.0	0.0	3.2

	Dec.	Dec	Dec.	Dec	Dec.	Dec.	Dec.	Dec.
	Nov. 0.9	Nov. 0.0 0.0 0.0	Nov. 0.0	Nov. 0.0 0.0	Nov. 0.0 0.0	Nov. 0.0	Nov.	Nov. 0.0 0.0
	Oct. 0.0	Oct.	Oct.	Oct.	Oct.	Oct.	Oct. 0.0	Oct.
	Sep.	Sep	Sep.	Sep.	Sep.	Sep.	Sep.	Sep.
	Aug.	Aug.	Aug.	Aug.	Aug.	Aug.	Aug.	Aug.
3	nt.) July 0.0 0.0 0.0	July 0.0 0.0 0.0 0.0	July 0.0	July 0.7 0.7	July 0.0	July 0.0	July 0.0	tus July 0.0 0.0 0.0
	Moproa (con June - - -	jordani June - - -	aucispinis June -	s pictus June -	decagramn June -	Ophiodon elongatus May June	Leptocottus armatus May June	ys marmora June - -
÷	Sebastes aptoproa (cont.) May June	Sebastes jordani May June	Sebastes paucispinis May June	Oxylebius pictus May June -	Hexagrammos decagrammus May June J	<i>Ophiodon</i> May	Leptocottu May	Scorpaenichthys marmoratus May June Ju
	Apr. 0.0 0.0	Apr. 0.0 8.1 2.2	Apr. 0.7	Apr. 0.0 0.0	Apr. 0.0	Apr. 0.7	Apr. 0.0	Apr. 0.0 0.0 0.0
	Mar. - -	Mar.	Mar. -	Mar.	Mar.	Mar.	Mar.	Mar.
	Feb	Feb	Feb.	Feb.	Feb.	Feb. -	Feb.	Feb
t;	Jan. 0.0 0.6 0.7	Jan. 0.7 0.0 1.5 0.0	Jan. 0.0	Jan. 0.0 0.0	Jan. 0.8 2.2	Jan. 1.5	Jan. 1.9	Jan. 2.2 4.5 2.6
TABLE 4. (cont.)	Station 83.3 60.0 86.7 45.0 90.0 30.0	Station 76.7 49.0 76.7 55.0 83.3 51.0 86.7 50.0	Station 76.7 60.0	Station Sta	Station 76.7 55.0 80.0 55.0	Station 83.3 51.0	Station 93.3 26.7	Station 76.7 49.0 76.7 51.0 80.0 51.0

TABLE 4. (cont.)

		;											-	:			.:																
	Ç	3	1	•	1	•	•	•	1	1			Dec	,	ı	í	Dec	•	1	•	ı	1	1	1	•	ı	1	•	1		Dec		,
	Nov		0.0	C.1	0.0	0.9	1.6	0.0	0.0	; '	1		Nov	00	2 ,	;	Nov.	0.0	0.0	0.0	0.0	1	1	ŧ	,	ı	ı	,	1		Nov.		,
	Oct	;	ı		1	ı		,		00	0.0		Oct.	;	0.0	Č	Oct.	ı	•	ı	, (0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		Oct.	0.0	8.0
	Sen	; }	•		ı	•		ı	,	,	•		Sep.		•	0	sep.	ı		1		t		,	t I	•	ı	,	ı		Sep.	٠,	1
	Aug	.0 -	i		ı	ı	1	ı	1	•	,		Aug.	, (₹	Aug.	•	ı			1	,				ı	•	•		Aug.	٠,	,
(cont)	July	00	0.0	0.0	0.0	9.0	0.0	0.0	0.0	0.0	0.0		July	0.7	6.0	Luk	ymy 00) (0.0	0.0	0.0	0.1	. 0	0.0) -	2.0		0.0	0.0		July	0.0	0.0
armoratus	June	1	ı			•	1	ı	•	1	1	rax spp.	June	•	•	ymmetricus Iune	amin's	ı	1	•			•		•	•	ı	ı	•	aponica	June	•	1
aenichthys n	May	` ,	,	•	,		•	,	1	,	1	Paralab	May	ı		Trachurus symmetricus Anr May Inne	,		•	ı			1	ı	ı	ı		ı		Brama j	May	•	1
Scorp	Apr.	0.0	0.0	0.0	0.0	0:0	0.0	0.7	0.0	0.0	6.0		Apr.	0.0	0.0	Anr	90	2.0	· «	. -	0.0	0:0	80	6.0	0.0	0.7	0 0	7.7	0.8		Apr.	0.0	0.0
	Mar.	t	ı	•	ı	,		ı	,	Ī			Mar.	ı	1	Mar	1	ļ		ı		,	,		ı	1	•		•		Mar.	ı	•
	Feb.	1	•	•	ı	ı		ı	ı		r		Feb.	1	•	Feb.		ı	,	ı	•	ı	,	1	ı	1	ı		•		Feb.	ı	
	Jan.	3.6	0.0	8.0	1.5	0 0	2.0	t	0.0	9.0	0.0		Jan.	0.0	0.0							0.0				_	_				Jan.	I.3	0.0
	بب			80.0 70.0									Station	83.3 55.0	90.0 30.0	Station	76.7 70.0	0.06 0.08	83.3 80.0	83.3 110.0	86.7 33.0	86.7 40.0	90.0 70.0	93.3 35.0	93.3 60.0	93.3 70.0	93.3 80.0	93 3 110 0	0:011		Station	90.0 110.0	93.3 100.0

TABLE 4. (cont.)

Dec. -	Dec.	Dec.	Dec.		Dec.		,		Dec.	•	• •	,		•	•	•		Dec	; ,	•	1
Nov.	Nov. 0.0	Nov.	Nov.		Nov.		•		Nov.	0.0	O. '	0.0	•	ı	1	ı		Nov	0.0	•	
Oct. 0.0 0.0	Oct.	Oct.	Oct.		Oct.	0.0	0.0		Oct.	1	0.0	} r	0.0	0.0	0.0	0.0		Oct	;	0.0	0.0
Sep.	Sep.	Sep.	Sep.		Sep.	•	ı		Sep.	ı	s 1	•	1	t	1	ŀ		Sen	1	1	1
Aug.	Aug.	Aug.	Aug.		Aug.	1	•		Aug.	1		•		ı	,	ı		Alle	b ·		ı
July 0.8 0.8	July 0.0	July 0.0	July 1.0		July 16				July									July	0.8	0.7	5.9
Kenistius californiensis May June -	Genyonemus lineatus May June	Seriphus politus May June	Girella nigricans May June	aliforniensi	June	ı	ı	unctipinnis	June	ı	ı ı		ı	,	1	•	lifornica	June	•	1	ı
Xenistius co May -	Genyonem May -	Seriphu May	Girella 1 May -	Medialuna c	May June -	•	1	Chromis p	May	t I	1	,	•	,	ı	•	Oxviulis californica	Mav	` ,	,	•
Apr. 0.0 0.0	Apr. 0.0	Apr. 0.8	Apr. 0.0		Apr. 0.0					0.0								Apr.	0.0	0.0	0.0
Mar.	Mar.	Mar.	Mar.		Mar. -	1	ı		Mar.		•	•		1	,	ı		Mar.			
Feb.	Feb.	Feb.	Feb.	,	Feb.	ı	,		Feb.		,	•		,	ı	ı		Feb.	•		1
Jan. 0.0 0.0	Jan. 0.9	Jan. 0.0	Jan. 0.0	,	Jan. 0.0	0.0	0.0		Jan.	0.0	0.0	:	0.0	0.0	0.0	0.0		Jan.	0.0	0.0	0.0
Station 90.0 28.0 93.3 35.0	Station 80.0 51.0	Station 90.0 30.0	Station 90.0 37.0	:	Station 90.0 28.0	90.0 53.0	93.3 45.0			83.3 60.0								Station	83.3 60.0		

TABLE 4. (cont.)

Dec	Dec.	Dec.	Dec. -	Dec.				Dec.	1 1		,	1		
Nov.	Nov. 1.6	Nov. 0.0	Nov. 0.0	Nov.	} , ,			Nov.	2. '	0.0	0.0		, ,	l †
Oct. 0.0 0.0	Oct.	Oct.	Oct.	Oct.	0.0	0.0		Oct.	0.0	ı	, (6.0	0:0	0:0
Sep.	Sep.	Sep.	Sep.	Sep.		1 i		Sep.	1	1	ı	1 1		•
Aug.	Aug.	Aug.	Aug.	Aug.	. ,			Aug.		ı		1 1	ı	
nt.) July 1.9 0.8	July 0.0	July 0.0	July 0.0 0.0	-		1.9 3.9		July 1.2		0.7	0.0	5.2	0.8	0.7
ornica (con June -	Neoclinus spp. May June	<i>blanchardi</i> June -	Neoclinus stephensae May June -	<i>mius</i> spp. June	1 1	į į	iius gilberti	June	ì	1			ı	,
Oxyjulis californica (cont.) May June	<i>Neoclin</i> May	Neoclinus blanchardi May June	Neoclinus May -	Hypsoblennius spp. May June		1 4	Hypsoblenn	May	•	1		,		r
Apr. 0.0 0.0 0.7	Apr. 0.0	Apr. 0.0	Apr. 0.0	Apr. 0.0	0.0	0.0		Apr. 0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mar. - -	Mar.	Mar.	Mar.	Mar.	t i	1 1	Max	Mal.	1			•	1	•
Feb	Feb.	Feb.	Feb	Feb.	, ,	1 1	Т фо	- 100.	ı		ı	,	•	•
Jan. 0.0 0.0	Jan. 0.0	Jan. 0.9	Jan. 0.8 0.0	Jan. 0.0	0.0	0.0	<u>181</u>	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Station 90.0 37.0 93.3 35.0 93.3 55.0	Station 83.3 42.0	Station 80.0 51.0	Station 83.3 40.6 86.7 40.0	Station 83.3 40.6	90.0 28.0	90.0 37.0 93.3 35.0	Station	83.3 42.0	86.7 35.0				93.3 35.0	

TABLE 4. (cont.)

	Dec.	ı	,	,	1	1	,	1	•	•	,	•		ı		•		Dec.	ı	,		Dec.	ı	1	ı		Dec.	ı		•	•	,	1	,
	Nov.	0.7	4.6	17.5	1		•	1	1	•	,		1	ı	ī	1		Nov.	0.0	•		Nov.	0.0	•			Nov.	0.0	0.0		1	,	ı	ı
	Oct.	ļ	1	ı	2.3	0.0	6.2	9.9	0.0	0.0	5.2	0.0	0.7	0.0	0.0	0.0		Oct.		0.0		Oct.	ı	0.0	0.0		Oct.	ı	1	0.0	0.0	0.0	0.0	0.0
	Sep.	1	•	ı	ı	ı		1	,	•	•	•		ı	,	•		Sep.	٠,	1		Sep.	•	,	•		Sep.	1	•	•	•		•	
	Aug.	ı		ŧ	t		•	1	ı	1		1	•	t	1	ı		Aug.	٠,	ı		Aug.	,	•	•		Aug.	,	1		ı	,		ı
	•																	July																
us jenkinsi	June	ı	•		ı	ı	1	ı	ı	•		,		ŧ	1	ı	•	'us nicholsii June	,	ı	ı argentea	June	1	•	ı	iaponicus	June	ı			•	•	•	1
Hypsoblenni	May	ı	•	ı	,	ı	,	ı	1	ı		ì	t	ŧ	,	ı	•	Coryphopterus nicholsii May June	, ,	•	Sphyraena	May	•	ı	,	Scomber	May	1	ı	ı	ı	ı	ı	ı
																		Apr.																
	Mar.	•	1	•	ı	•	•	ı	1	,		1	1	1	ı	,		Mar.	,	•		Mar.		•	,		Mar.	ı			ı	1	•	
	Feb.	ı	•	1	ı	•	1	ı	ī	1	,	•		ı	i	•		Feb.	,			Feb.		•	ı		Feb.	,	ı		ı	,	ı	,
	Jan.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			Jan.	0.0	0.0		Jan.	0.0	0.0	0.0							0.0		
	Station		83.3 40.6								93.3 26.7							Station	83.3 51.0	90.0 53.0		Station	83.3 51.0	90.0 28.0	93.3 35.0		Station	83.3 55.0	86.7 55.0	90.0 28.0	90.0 30.0	93.3 35.0	93.3 40.0	93.3 60.0

	Dec	; 		1 1			Dec	•		•	1		1	,	1					Dec.	,	1		¢	Dec.	ı		1	,	•	,		2	Lac.		•	1		•
	Nov	0.0) (0.0	}		Nov.	80	9.0	0.0	0.0	0.8	0.7	ı	ı	1	ı			Nov.	2.4	0.0		10	000	0.0	0.0	0.8 8.0	0.0	0.0	0.0		Nox		0.0	1.5	0.0	0.0	0.0
	Oct.	ı	1	•			Oct.	ı		ı	•	•	ı	0.0	0.0	0.0	0.0) - 		Oct.	1	ı		ţ.		ı	1	i	ı	1	ı		Oct	;		1	1	ı	1
	Sep.	٠,	1				Sep.	' 1			ł	1	ı	ı	ı	1	ı			Sep.	٠,	ı		Sen	ch.	ı	ı	1	1		ı		Sen		1	,	ı	1	•
	Aug.	ı	,	•			Aug.	,	ı	ı	ī		1		ı	1	1			Aug.	•	ı		Ang	. 9 ·	,		1	ı		,		Ang	.0	İ	1	•	,	ı
•				0.0													0.7							Inly	90	0.0	0.0	0:0	7 0	۸:۰	0.0		July	0	0.0	0.0	0.5	1.3	0.0
lockington	May June	,	,	•	•	rus cuvieri Š	June	,	•	1	Í		1	ı	ı	ı	•	:	ımıllımus	June	1	•	vs sordidus	June	1	ı	,	1		ı		s stigmaeus	June	ı		1	1	ı	ı
Icichthys	May		,		Total	retragona	May	ı		ı	•			ı	,	•	1		reprius s	May	•		Citharichthys sordidus	Mav	` '	1	ı	ı		•	•	Citharichthy	May	٠,	•		,	ı	,
	Apr.										0.0																	0.0											
	Mar.		1	ı		Mar	Mar.	•	ı		,		ı						,	Mar.	ı			Mar.	ı	ı	1	,	ı		ı		Mar.	•	,		ı	•	
	Feb.		1	,		Lob	ren.	•	ı	ŧ	1	ı	!	1	1	ı			Ļ	reo.		1		Feb.	•	1	1	,	,		•		Feb.		,	,	Ī	ı	ı
	Jan.	0.0	0.0	0.0		Į,	Jall.	0.0	0.0	0.0	0.0	0.0	0.0	9.0	0.0	0.0	0.0			Jan.	0.0	0.0		Jan.	0.0	0.7	0.0	0.8	0.0		0:0		Jan.	9.0	0.0	00	0:0		1.5
	Station	0.06 /0/	86.7 90.0	86.7 110.0		Station	0001 1000	0.001 5.50	86.7 60.0	86.7 80.0	86.7 90.0	86.7 100.0	0 07 0 09	0.00	90.0 120.0	93.3 110.0	93.3 120.0		Ctotion	Station 600	0.10 0.00	83.3 51.0	·	Station	80.0 51.0	80.0 55.0	83.3 42.0	83.3 51.0	83.3 55.0	0 05 2 28	0.00		Station	76.7 70.0	80.0 60.0	83.3 51.0	83.3 55.0	0.00 5.00	00.7
																			15	:																			

TABLE 4. (cont.)

Dec. Dec. Nov. 0.0 0.0 Nov. 0.0 Oct. Oct. -0.9 Sep. Sep. Aug. -Aug. July 0.0 0.0 July 0.7 0.0 Pleuronichthys coenosus

May June J Microstomus pacificus May June Apr. 0.7 Apr. 0.0 0.0 Mar. -Mar. -Feb. -Feb. -Jan. 0.0 0.0 Jan. 0.0 0.0 TABLE 4. (cont.) Station 80.0 55.0 90.0 37.0 Station 76.7 55.0 76.7 60.0

TABLE 5. Station and Bongo net tow data for CalCOFI cruises in 2001. Counts for fish eggs and larvae are not adjusted for standard haul factor or percent of sample sorted. Plankton volume given as milliliters per 1000 cubic meters of water strained.

	Total Larvae		107	130	× ×	20	20	2	7	0	36	27	18	35	12	12	7 ~	. 5	30	33	268	9	5	∞	∞	0	۰ ۳) V	7	10	27	221	98 86
	Percent Sorted	,	100.0	50.0	100.0	100.0	51.0	51.5	100.0	100.0	100.0	46.8	46.1	48.5	100.0	52.6	100.0	54.5	100 0	100.0	100.0	50.9	53.1	100.0	100.0	100.0	100 0	100.0	100.0	100.0	48.3	100.0	100.0
	Plankton Volume	ì	146	168	49	41	219	74	32	50	119	73	06	219	38	85	49	92	85	20	83	122	106	34	30	100	28	25	37	69	78	2 X	82
	Standard Haul Factor	9	4.39	5.00	5.12	4.83	4.89	4.95	4.89	4.67	3.88	4.85	4.95	4.37	4.78	4.73	5.08	4.86	3.35	3.84	4.44	4.90	4.71	5.38	4.26	4.97	4.99	4.94	4.56	5.08	5.54	5.06	3.63
	Volume Water Strained	122	671	429	412	440	439	444	442	454	117	440	431	460	443	445	421	433	59	200	181	434	444	409	470	430	429	432	109	418	395	428	122
0101	Tow Depth (m)	7.5	75	214	211	213	215	220	216	212	46	213	214	201	212	211	214	211	70	11	81	213	209	220	200	214	215	213	50	213	219	216	44
	Time (PST)	2024	1000	1809	1423	0846	0349	2153	1615	0838	2142	0026	0441	1114	1653	2208	0352	1744	1249	1105	0456	0158	2158	1600	0828	0052	1857	1259	1633	1914	2320	0323	0740
CalCOFI Cruise	Tow Date yr. mo. day	0	01 01 02	01	0.5	5	01	<u>.</u>	5 6	5 5	5 6	5 5	5 6	7	0.	0	01	01	0	01	01	0.0	01 01 18	5 6	10		01	01	01	01	01	01	01
	Ship Code	Of	1	ج ا	<u>.</u>	Of E	<u>G</u> 4	<u> </u>	3 8	3 5	j E	3 5	3 6	3 5	3 8	<u>ا</u> ز		9	Of a	E I	<u>e</u> :	3 8	<u> </u>	3 6	J 5	J 1	Of.	9	E C	Ð	G G	G.	<u>U</u>
	Longitude (W) deg. min.																						120 43.4										
	Latitude (N) deg. min.																						14.7										
	La Station de	49.0																					33										
		76.7																															

14 10 22 12 18 18 7 7 8 8 111 179 80

Total Eggs

		Total	2883	119	11	16	124	-	9	55	4	216	147	17	9	4	5	10	3	4	3	Ξ	0	0	2	21	10	52	70	4	6	7	19	12	Ξ
		Total	Laivac	19	_	9	2	_	2	2	4	21	11	10	3	7	7	4	12	18	22	4	17	0	7	∞	5	6	3	3	15	6	9	9	9
		Percent	naning	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	50.6	47.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	48.5	100.0	100.0	100.0	100.0	100.0	100.0
		Plankton Volume	v Oranic	28	24	17	21	41	28	49	59	191	113	59	37	49	35	15	18	27	28	21	36	16	35	28	35	51	61	25	53	32	Ξ	21	25
	Standard	Haul Factor	Lactor	4.59	4.78	4.45	4.94	4.34	4.97	4.55	5.25	5.53	4.91	5.01	4.98	4.86	5.00	4.71	4.67	4.40	4.69	4.66	4.75	4.96	5.00	4.97	5.10	4.99	2.88	4.46	4.89	4.77	4.71	4.34	4.97
	Volume	Water	Stramou	460	456	473	434	484	431	123	406	382	424	424	428	447	434	458	436	483	466	474	276	438	429	431	428	428	572	488	447	444	446	481	445
0101	Tow	Depth	(m)	211	218	210	215	210	214	99	213	212	208	212	213	217	217	216	204	212	218	221	131	217	214	214	218	214	165	217	219	212	210	209	221
	į	Time (PST)	(101)	1159	1616	1200	1835	0047	9636	0642	0456	0051	2218	1718	1158	0690	0011	1737	0827	0111	1849	1221	1220	1448	0024	0426	0828	1430	1850	1729	2337	0543	1221	2109	0503
CalCOFI Cruise	i	Tow Date	Jr. mo. day	01 01 15	01 01 15	01 01 16	01 01 16	01 01 17			Ξ.	0.1	0	01 01 13	010	01	01	01	01 01 12	01		01	01	-	0	01		01	01	<u>.</u>	0.1	Ī.		01 01 10	01 01 11
		Ship Code		JD	Œ	Ω	OT.	Œ	G.	Œ	Ω	O.	J.	E,	Ωſ	Ωſ	O.	ď	Ω	G.	Ωſ	O.	Ωſ	E.	G	Ð	O.	Ü	G.	Ð	O.	G.	Ð	9	Of.
		Longitude (W)		119 59.9				123 04.2																											
	÷	Latitude (N)	à	33 09.1																															
(cont.)	٠	L: Station d		55.0 3																															
Table 5. (cont.)		Line		2.98																															

19 30 37 26 30 30 45 45 16 16 17 17 17 17 Total Eggs Total Larvae Percent Sorted Plankton Volume Standard Factor Haul Volume Water Strained Tow Depth (m) CalCOFI Cruise Time (PST) Tow Date yr. mo. day Ship Code eeeeeeeeeeeeeeeeeeeeeeee Longitude (W) deg. min. Latitude (N) deg. min. Station Table 5. (cont.) Line

	Total Eggs	99	106	27	36	1387	1006	452	∞ ;	298	25	170	299	404	25	21	35	45	53	56	38	241	775	199	118	159	220	355	864	34	210	137
	Total Larvae	156	170	35	59	46	148	99	17	6	30	38	540	203	45	19	41	26	23	86	44	102	386	73	34	144	28	17	132	22	12	22
	Percent Sorted	50.7	100.0	100.0	100.0	49.2	51.4	52.0	100.0	52.3	51.9	48.0	100.0	100.0	100.0	100.0	100.0	100.0	0.001	100.0	100.0	52.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Plankton Volume	143	61	26	46	157	164	106	52	26	168	108	23	47	24	16	70	26	95	53	52	93	51	32	35	23	52	42	24	20	34	18
	Standard Haul Factor	4.97	4.77	4.64	4.61	2.00	5.21	4.47	4.94	5.02	4.61	4.48	4.65	4.57	4.70	4.19	4.22	4.35	3.66	4.43	4.68	4.73	5.02	4.50	4.49	4.30	4.54	4.49	4.70	4.76	4.42	4.72
	Volume Swater	440	444	455	457	428	414	455	439	433	458	463	453	489	465	505	205	492	127	473	457	451	432	468	463	474	460	476	456	454	473	452
0104	Tow Depth (m)	219	212	211	211	214	216	203	217	217	211	207	211	224	219	212	212	214	46	210	214	213	217	211	208	204	209	214	214	216	209	213
	Time [PST]	0320	0816	1543	2147	0306	9000	1956	1720	1155	0435	2323	1650	0847	0044	1805	0060	0313	1317	1541	1845	2251	0318	0800	1225	1637	2232	0523	1156	1800	0014	0853
CalCOFI Cruise	Tow Date yr. mo. day	01 04 15		01 04 15				40	40	01 04 12	Ξ.		_	_	_		04	040	94	9	94	01 04 06	94	9	04	04	40	04	40	04	40	04
	Ship Code	Qſ	JD	JD	Œ	Ωſ	OC.	Ð	G G	Ð	Ωſ	Ωſ	Ωſ	Ωſ	Œ	Œ	Ωſ	Ωſ	Ωſ	Œ	Ωſ	Ωſ	Ωſ	OL	Ωſ	CI.	Ω	Ωſ	Ωſ	Œ	Œ	OL
	Longitude (W) deg. min.					7 46.2																										
	Longit deg.	121	122	123	123	117	117	118	118	118	115	119	120	121	121	122	123	12	11.	11.	11.	Ξ	118	11	11	Ξ	11	12	12	12	12	12
	Latitude (N) deg. min.	19.5	59.3	39.5	19.5	29.1	25.1	15.1	11.1	55.1	39.2	25.1	05.1	44.9	25.1	04.9	45.1	25.1	57.3	54.7	80.8	40.9	30.9	20.9	10.7	6.00	51.0	30.8	10.7	50.9	31.0	10.6
	Latitu deg.	32	31	31	31	33	33	33	33	32	32	32	32	31	31	31	30	30	32	32	32	32	32	32	32	32	31	31	31	30	30	30
Table 5. (cont.)	Station	80.0	0.06	100.0	110.0	28.0	30.0	35.0	37.0	45.0	53.0	0.09	70.0	80.0	0.06	100.0	110.0	120.0	26.7	28.0	30.0	35.0	40.0	45.0	50.0	55.0	0.09	70.0	80.0	90.0	100.0	110.0
Table 5	Line	86.7	86.7	86.7	86.7	0.06	0.06	0.06	90.0	90.0	90.0	90.0	90.0	90.0	0.06	0.06		90.0	93.3	93.3	93.3	93.3	93.3	93.3	93.3	93.3	93.3	93.3	93.3	93.3	93.3	93.3

Latitude (N) Longitude (W) Ship Tow Date Time Depth Water Haul Plankton Percent Total deg. min. deg. min. deg. min. day (PST) (m) Strained Factor Volume Sorted Larvae 35 01.0 120 56.4 NH 01 07 26 0018 213 414 514 642 48.7 1 1 1 1 1 1 1 NH 01 07 26 0236 196 457 428 230 51.4 83.7 1 1 1 1 1 1 NH 01 07 25 2236 214 431 435 372 48.4 1 1 1 1 1 1 NH 01 07 25 2236 214 431 453 372 48.4 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	trude (N) Longitude (W) Ship Tow Date Time Depth Water Hand Plankford Power Total deg 5. min. deg. min. Code y. mo. day (FST) (TM Depth Water Hand Plankford Power 1 (1) 5. min. deg. min. Code y. mo. day (FST) (TM Strained Factor Volume Sorted Larvae 5.1.4 120 56.4 NH 01 07 26 0623 19 417 418 210 48.4 1 5.3.4 122 15.0 NH 01 07 26 0236 194 417 418 10 7 418 118 14 414<	Table 5. (cont.)						Ű	CalCOFI Cruise	Cruise	0107						
35 0.54 120 46.9 NH 01 07 26 0618 213 414 642 48.7 1 35 0.10 120 56.4 NH 01 07 26 0618 213 414 642 48.4 1 34 43.3 121 13.0 NH 01 07 25 1508 196 457 550 51.4 642 88.4 10 34 43.4 122 15.0 NH 01 07 25 1659 207 427 48.7 100 50 51.4 414 414 642 48.4 1 43 44.7 48 10 75 10 75 10 76 10 75 10 76 48.4 1 48.4 1 48.4 1 48.4 1 48.4 1 10 75 10 75 10 75 10 75 10 </th <th>35 654 120 46.9 NH 01 07 26 6058 213 414 5.14 642 48.7 11 34 53.0 120 564 NH 01 07 26 6018 213 414 5.14 642 48.4 1 34 53.3 121 119 NH 01 07 25 105 204 48.7 42.8 37.2 48.4 10 34 43.3 122 150 NH 01 07 25 105 204 48.9 10 88.9 10 37.2 48.9 10 50</th> <th>п</th> <th>Latit deg.</th> <th>ude (N) min.</th> <th>Longit deg.</th> <th></th> <th>Ship Code</th> <th>Tow I yr. mo</th> <th>Date). day</th> <th>Time (PST)</th> <th>Tow Depth (m)</th> <th>Volume Water Strained</th> <th>Standard Haul Factor</th> <th>Plankton Volume</th> <th>Percent Sorted</th> <th>Total Larvae</th> <th>Total Eggs</th>	35 654 120 46.9 NH 01 07 26 6058 213 414 5.14 642 48.7 11 34 53.0 120 564 NH 01 07 26 6018 213 414 5.14 642 48.4 1 34 53.3 121 119 NH 01 07 25 105 204 48.7 42.8 37.2 48.4 10 34 43.3 122 150 NH 01 07 25 105 204 48.9 10 88.9 10 37.2 48.9 10 50	п	Latit deg.	ude (N) min.	Longit deg.		Ship Code	Tow I yr. mo	Date). day	Time (PST)	Tow Depth (m)	Volume Water Strained	Standard Haul Factor	Plankton Volume	Percent Sorted	Total Larvae	Total Eggs
9. 0.1.0 120 564 NH 01 07 26 0648 213 414 5.14 642 485 13 34 53.3 121 13.0 NH 01 07 25 2236 194 437 428 230 514 8 34 43.3 121 13.0 NH 01 07 25 1236 194 437 485 510 510 8 10 485 10 485 10 485 10 485 10 485 10 485 10 485 10 485 10 485 10 485 10 485 10 485 10 485 10 485 10 485 10 10 20 485 10 10 20 486 10 20 486 10 20 486 10 20 486 487 487 10 486 10 20 487 487 10 487 487 488 487 488 487<	35 91.0 120 564 NH 01 07 56 068 213 44 5.14 642 462 463 34 43.3 121 130 NH 01 07 26 196 457 428 536 514 48 34 43.3 121 33.0 NH 01 07 25 1050 196 457 48 30 514 8 34 43.3 122 56. NH 01 07 25 1050 198 44 49 50 60 100 50 48 10 60 60 60 10 60		35	05.4	120	46.9	HN			0923	59	142	4.17	1403	48.7	-	
34 33.3 121 11.9 NH 01 07 26 0236 196 457 428 236 51.4 8 34 23.4 123 121 13.0 NH 01 07 25 224 447 457 550 48.5 10 34 33 122 56.6 NH 01 07 25 1059 204 446 516 510 9 34 33 122 56.6 NH 01 07 25 1059 10 50 9 48 51 1000 50 34 33 122 120 11 10 07 23 23 10 49 50 10 50 9 48 10 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10 00 10	34 3.3.3 121 11.9 NH 01 07 26 0.236 196 457 428 230 51.4 8 34 3.3.3 121 13.30 NH 01 7.25 1659 204 431 497 550 48.5 10 34 3.3.3 122 15.0 NH 01 7.25 1058 214 437 487 550 48.5 10 34 43.3 12.2 15.2 NH 01 7.25 1058 204 457 485 10 50 21 48.4 10 7.2 48.2 10 50 48.5 10 50 48.5 10 50 48.5 10 60 50.0 48.5 10 60 50.0 48.5 10 60 50.0 48.5 10 50.0 49 40 10 7.2 10 70 20 40 40 10		3	01.0	120	56.4	HN			0618	213	414	5.14	642	48.4	- -	
4 43.3 121 33.0 NH 01 07 25 224 43.1 497 550 48.3 10 34 03.3 122 150 NH 01 07 25 1689 207 48 572 48.4 0 34 03.3 122 150 NH 01 07 25 1689 207 48 372 48.4 0 34 26.9 120 31.5 NH 01 07 24 188 19 100 0 07 100 0 100 0<	44 43 121 43 121 340 43 121 340 43 424 43 424 43 43 424 43 434		4 5	53.3	121	11.9	HN			0236	196	457	4.28	230	51.4	- 0	•
34 23.4 122 15.0 NH 01 07 25 1659 207 427 485 372 489 17 483 372 489 17 483 372 483 17 483 17 483 18<	4 23.4 122 15.0 NH 01 07 25 1659 207 477 485 372 489 100 5 33 43.3 122 56.6 NH 01 07 25 1638 214 416 516 51 100.0 5 34 43.3 122 56.6 NH 01 07 25 1638 214 448 516 100 5 34 43.3 122 12.0 13.5 NH 01 07 22 2335 67 134 498 100 0 34 19.2 120 12.0 NH 01 07 22 2335 67 134 498 100 0 34 99.1 121 100.0 NH 01 07 22 2335 67 148 498 100 0 33 48.8 122 20.0 NH 01 07 23 1631 214 448 476 166 50.6 1 34 90.1 123 20.0 NH 01 07 24 091 220 448 475 466 448 177 477 448		34	43.3	121	33.0	HN			2236	214	431	4 97	550	7.07	0 5	•
34 1122 56.6 NH 01 7.2 1058 214 416 5.16 51 100.0 5.3 34 3.3 122 36.6 NH 01 07 25 0150 199 502 3.96 106 50.9 2 34 26.9 120 31.5 NH 01 07 22 233.5 67 134 4.98 17 100.0 1 34 26.9 120 31.5 NH 01 07 23 20.2 4.29 20.9 51.1 7 100.0 1 1 1 1 1 1 1 1 1 1 1 4.98 1 4.98 51.1 7 1 1 4 4.98 4.19 1 7 4 4 4.1 4.98 1 1 0 0 9.9 5.1 3 4 4 4 4 4 4	34 03.3 122 56.6 NH 01 07 25 108 214 416 516 51 100.0 51 34 03.3 123 38.2 NH 01 07 25 0150 199 502 336 106 50.9 2 34 26.9 120 31.5 NH 01 07 23 23.5 106 50.9 51.1 7 100.0 1 100.0 1 100.0 1 100.0 1 100.0 1 100.0 1 100.0 1 100.0 1 1 100.0 1 1 100.0 1 1 100.0 1 1 1 1 1 4.3 1 4.8 1 1 1 7 1 1 4.8 4 4 4 1 1 0 1 1 4 4 4 4 1 1 0 4		34	23.4	122	15.0	NH			1659	207	427	4.85	372	46.7	01	
35 45.5. 1.25 88.7. NH 01 72 199 802 3.96 106 50.9 2 34 25.0 120 31.5 NH 01 72 21.5 17 433 5.00 76 100.0 1 34 12.0 11.0 48.3 NH 01 72 135.5 17 4.39 100 1	35 45.5. 17.3 38.2 NH 01 72.5 0150 199 802 3.96 106 50.9 2 34 25.3 12.4 195.5 NH 01 7.2 13.5 17 4.39 5.00 76 100.0 1 34 19.2 11.2 11.5 NH 01 7.2 13.5 7 4.39 20.9 76 100.0 1 34 19.2 11.2 10.0 NH 01 7.2 13.5 197 4.76 100.0 11 7 100.0 1 1 4.98 10.0 1 1 4.98 10.0 1 1 3.0 1 1 10.0 1 1 1 1 1 4 1 0 7 1 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 <td></td> <td>34 c</td> <td>03.3</td> <td>122</td> <td>56.6</td> <td>HZ ;</td> <td></td> <td></td> <td>1058</td> <td>214</td> <td>416</td> <td>5.16</td> <td>51</td> <td>100.0</td> <td>o v</td> <td></td>		34 c	03.3	122	56.6	HZ ;			1058	214	416	5.16	51	100.0	o v	
3. 23.1 124 19.5 NH 01 07 24 1952 217 433 5.00 76 100.0 1 34 26.9 120 31.5 NH 01 07 22 2335 67 134 4.98 127 100.0 1 34 19.2 120 40.0 NH 01 07 23 0833 220 412 5.35 197 51.8 8 35 28.8 121 50.6 NH 01 07 23 1651 214 451 4.76 166 50.6 1 31 28.8 122 32.0 NH 01 07 24 0913 224 217 496 167 479 47 32 49.0 123 34.4 NH 01 07 24 0913 222 419 5.31 86 100.0 4 34 16.8 120 00.9 NH 01 07 22 092 27 77 3.31 117 100.0 9 34 16.7 119 24.6 NH 01 07 22 092 27 77 3.51 117 100.0 9 34 10.7 119 30.5 NH 01 07 22 092 27 77 3.51 117	3.5.4.1 1.24 19.5 NH 01 07 24 1952 217 433 5.00 76 100.0 1 34 2.6.5 120 31.5 NH 01 07 23 2335 67 134 4.98 127 100.0 1 34 9.9.1 120 88.3 NH 01 07 23 0833 220 412 5.36 99 51.1 00.0 1 31 28.8 122 32.0 412 5.36 50.6 1 1 0 0 1 0 0 1 0 0 1 0 0 0 1 0 0 0 1 0 </td <td></td> <td>, ,</td> <td>43.3</td> <td>123</td> <td>38.2</td> <td>HN</td> <td></td> <td></td> <td>0150</td> <td>199</td> <td>502</td> <td>3.96</td> <td>106</td> <td>50.0</td> <td>) C</td> <td></td>		, ,	43.3	123	38.2	HN			0150	199	502	3.96	106	50.0) C	
34 90.5 120 31.5 NH 01 07 23 67 134 4.98 127 1000 1 34 90.1 121 98.0 NH 01 07 23 1651 214 4.96 166 50.6 11 34 90.1 121 50.6 NH 01 07 23 1651 214 451 4.76 166 50.6 11 3 33 99.1 123 12.0 NH 01 07 24 09.9 466 4.48 212 50.6 4 3 4 4.96 148 212 50.5 4 4 4.79 4 4 4.70 4 4 4.70 4 <t< td=""><td>34 100 110 100</td><td></td><td>33</td><td>23.1</td><td>124</td><td>19.5</td><td>HZ ?</td><td></td><td></td><td>1952</td><td>217</td><td>433</td><td>5.00</td><td>9/</td><td>100.0</td><td>7 -</td><td>_</td></t<>	34 100 110 100		33	23.1	124	19.5	HZ ?			1952	217	433	5.00	9/	100.0	7 -	_
34 10.0 11.0 48.3 NH 01 07 23 0325 198 431 4.59 209 51.1 7 34 49.0 121 50.6 NH 01 07 23 124 476 166 50.6 51.1 73 34 490 121 50.6 147 51.8 8 197 51.8 8 197 51.8 8 197 51.8 8 190 51.1 47.9	34 40.0 10.0 73.3 102.5 19.8 431 4.59 209 51.1 7 34 49.0 12.1 50.6 NH 01 07 23 6833 220 412 53.5 197 51.8 8 33 49.0 121 50.6 NH 01 07 23 2245 217 437 496 166 50.6 51.8 8 33 49.0 122 32.0 NH 01 07 24 646 448 212 50.6 50.6 17 44.9 66 448 212 50.6 44 44.9 66 448 212 50.6 44 44.9 66 60.0 44 44.9 44.8 10.0 44 44.8 10.0 44 44.8 10.0 44 44.8 10.0 44 44.8 10.0 44 44.8 44.9 44.9 44.9 44.9 44		7 7	20.7	071	31.5	HN			2335	29	134	4.98	127	100 0	-	37
34 90.1 121 90.0 NH 01 07 23 220 412 5.35 197 51.8 8 33 49.0 121 50.6 NH 01 07 24 51.4 451 476 166 50.6 1 33 28.8 122 32.4 NH 01 07 24 93.0 406 4.86 167 47.9 4 34 16.8 120 00.9 NH 01 07 22 419 5.31 86 100.0 4 34 16.8 120 00.9 NH 01 07 22 177 3.51 110 0.0 25 34 16.8 19 5.24 419 5.31 86 100.0 4 34 16.8 19 5.24 419 5.31 86 100.0 5 34 45 47 47 47 47 <	34 05.1 121 09.0 NH 01 07 23 0833 220 412 5.35 197 51.8 8 33 28.8 122 32.0 NH 01 07 23 1651 214 451 476 166 50.6 1 33 28.8 122 32.0 NH 01 07 24 040 209 466 44.8 166 50.6 1 34 10.0 10.2 24 0913 222 419 5.31 86 100.0 4 34 10.6 10.0 0.0 NH 01 07 22 419 5.31 86 100.0 9 34 13.6 119 24.6 NH 01 07 22 072 172 378 56.2 40 50.0 9 34 10.7 11 20.0 NH 01 07 22		ئ 4 ر	7.61	120	48.3	HN			0325	198	431	4.59	506	51.1	1	÷ ÷
32 28.8 121 50.6 NH 01 07 23 1651 214 451 476 166 50.6 3 33 28.8 122 32.0 NH 01 07 24 234 217 436 167 47.9 4 34 10.1 123 13.2 NH 01 07 24 0913 229 466 448 212 50.5 4 34 16.8 120 00.9 NH 01 07 22 172 212 378 56.2 40.0 50.6 25 34 16.8 119 24.6 NH 01 07 22 077 21 100.0 9 4 4 4 50.6 15.0 4 4 4 50.6 15.0 4 4 50.6 100.0 9 4 4 50.6 100.0 9 4 4 50.6 100.0	35 49.0 121 30.6 NH 01 07 23 1651 214 451 4.76 166 50.6 17 33 98.8 122 32.0 NH 01 07 244 217 437 496 167 47.9 4 32 49.0 123 34.4 NH 01 07 24 0913 229 466 448 212 50.5 4 34 16.8 120 00.9 NH 01 07 22 1721 272 47 3.51 117 100.0 9 34 13.6 119 24.6 NH 01 07 22 0707 210 429 490 157 100.0 9 35 24.8 110 07 22 0707 210 429 490 157 11 00.0 14 450 51.5 14 451 440 452		4 6	1.60	121	0.60	HZ			0833	220	412	5.35	197	51.8	~ ∝	•
3.5 2.8.8 1.22 3.2.0 NH 01 0.2 2.245 21.7 43.7 4.96 16.7 47.9 4.9 3.2 49.0 1.23 3.4.4 NH 01 0.2 4.0 4.48 212 50.5 4 3.4 19.0 1.23 5.4.4 NH 01 0.7 2.4 0.913 2.2.2 419 5.31 86 100.0 4 3.4 1.6.8 1.0 0.0 NH 01 0.7 2.0 0.0 4 0.0 <	35 28.8 1122 32.0 NH 01 07 2245 217 437 496 167 47.9 47.9 43.0 43.0 43.0 43.0 43.0 43.0 43.0 43.0 43.0 44.8 212 50.5 44.0 44.8 212 50.5 44.0 44.0 44.8 212 50.5 44.0 44.0 44.8 212 50.5 44.0 44.0 44.8 212 50.5 44.0		2 5	49.0	121	50.6	HN			1651	214	451	4.76	166	50.6	o –	
33 99.1 123 13.2 NH 01 07 24 0430 209 466 448 212 57.2 43 203 44 203 44 203 44 203 44 203 44 203 44 203 44 203 44 203 44 203 44 203 44 203 44 203 44 203 44 203 44 203 403 203 44 203 203 403 203 403 203 403 203 403 203 403 203 403 203 403 203 403 203 403 203 403 203 403 203 403 203 403 203 403 203 203 403 203 403 203 403 203 403 203 403 203 403 203 403 203 203 403 203 203<	34 99.0 123 13.2 NH 01 07 24 0430 209 466 448 212 57.5 44 34 168 120 00.0 NH 01 07 22 1721 212 378 5.62 402 50.6 25 34 168 120 4.6 NH 01 07 22 1721 212 378 5.62 402 50.6 25 34 10.7 119 30.5 NH 01 07 22 0707 27 77 3.51 117 100.0 9 34 10.7 119 30.5 NH 01 07 22 0707 21 4.9 4.9 154 51.5 14 33 34.8 120 24.6 NH 01 07 22 0048 166 364 4.55 74 51.8 8 33 34.8 120 45.5 NH 01 07 21 218 208 449 4.65 234 48.5 36 32 34.7 121 26.5 NH 01 07 21 0306 200 449 4.65 234 48.5 36 32 34.7 121 26.5 NH 01 07 21 0306 200 454 440 93 52.3 50.4 2 32 34.7 122 48.9 NH 01 07 21 0306 200 454 440 93 52.3 50.4 2 32 34.7 122 48.9 NH 01 07 21 0306 214 409 5.24 39 100.0 13 35 35.3 118 29.4 NH 01 07 17 1106 51 108 4.85 86 50.0 13 36 39.4 118 58.5 NH 01 07 17 178 20.2 416 48.8 78 100.0 5 31 39.4 118 58.5 NH 01 07 17 1748 20.3 411 5.18 5.18 118 29.4 NH 01 07 17 178 20.3 411 5.18 58.5 NH 01 07 17 1748 20.3 411 5.18 58.5 NH 01 07 17 1748 20.3 411 5.18 58.5 NH 01 07 17 1748 20.3 411 5.18 5.18 119 39.9 NH 01 07 18 118 80 167 478 78 100.0 5 32 39.7 121 01.7 NH 01 07 18 1830 219 439 5.02 85 51.3 51.3 51.3 51.3 51.3 51.3 NH 01 07 18 118 20.1 4.3 5.02 85 51.3 51.3 51.3 51.3 NH 01 07 18 118 20.1 4.3 50.0 141 51.6 51.3 51.3 51.3 51.3 NH 01 07 18 120 218 435 5.02 85 51.3 51.3 51.3 51.3 51.3 NH 01 07 18 120 218 435 5.02 85 51.3 51.3 51.3 51.3 51.3 NH 01 07 18 120 218 437 5.02 85 51.3 51.3 51.3 51.3 51.3 51.3 NH 01 07 18 120 218 437 5.02 85 51.3 51.3 51.3 51.3 51.3 51.3 51.3 51.		33	28.8	122	32.0	HN			2245	217	437	4.96	167	47.0		
32 49,0 123 54,4 NH 01 07 24 0913 222 419 531 86 100.0 4 34 16.8 120 00.9 NH 01 07 22 1721 212 378 562 402 50.6 25 34 13.6 119 24.6 NH 01 07 22 0707 210 429 4.90 154 51.5 14 33 52.8 120 08.3 NH 01 07 21 0048 186 4.97 263 51.8 6 33 52.8 120 08.5 NH 01 07 21 180 4.99 4.55 74 51.8 6 33 44.8 120 04.9 01 07 21 180 4.90 4.90 51.8 6 4.90 51.8 6 4.90 51.8 6 4.90 51.8 <td>32 49,0 123 54,4 NH 01 07 24 0913 222 419 531 86 100 4 34 16.8 120 00.9 NH 01 07 22 1721 212 378 5.62 402 50.6 25 34 13.6 119 24.6 NH 01 07 22 0927 27 77 3.51 117 100.0 9 33 52.8 120 08.3 NH 01 07 21 0048 166 364 4.55 74 51.8 14 33 52.8 120 08.3 NH 01 07 21 186 209 449 4.65 51.8 6 33 34.5 120 45.5 NH 01 07 21 180 4.90 4.65 234 48.5 36 33 34.6 122 08.0</td> <td></td> <td>33</td> <td>09.1</td> <td>123</td> <td>13.2</td> <td>HN</td> <td></td> <td></td> <td>0430</td> <td>209</td> <td>466</td> <td>4 48</td> <td>212</td> <td>505</td> <td>† -</td> <td></td>	32 49,0 123 54,4 NH 01 07 24 0913 222 419 531 86 100 4 34 16.8 120 00.9 NH 01 07 22 1721 212 378 5.62 402 50.6 25 34 13.6 119 24.6 NH 01 07 22 0927 27 77 3.51 117 100.0 9 33 52.8 120 08.3 NH 01 07 21 0048 166 364 4.55 74 51.8 14 33 52.8 120 08.3 NH 01 07 21 186 209 449 4.65 51.8 6 33 34.5 120 45.5 NH 01 07 21 180 4.90 4.65 234 48.5 36 33 34.6 122 08.0		33	09.1	123	13.2	HN			0430	209	466	4 48	212	505	† -	
34 16.8 120 00.9 NH 01 07 22 172 378 5.62 402 5.03 25 34 13.6 119 24.6 NH 01 07 22 0927 27 77 3.51 117 100.0 25 34 13.6 119 30.5 NH 01 07 22 0707 210 429 4.90 154 51.5 14 33 44.8 120 68.5 NH 01 07 21 80.8 418 4.97 263 51.8 8 33 34.5 120 68.5 NH 01 07 21 80.8 418 4.97 263 51.8 8 33 34.5 120 68.0 NH 01 07 21 80.9 449 4.65 234 48.5 36 34 14.7 122 88.0 NH 01	34 16.8 120 00.9 NH 01 07 22 1721 212 378 5.62 402 50.00 27 34 13.6 119 24.6 NH 01 07 22 0707 210 429 490 154 51.5 14 33 52.8 120 08.3 NH 01 07 21 20.04 156 364 4.55 74 51.8 6 33 44.8 120 24.6 NH 01 07 21 20.04 49 4.65 234 48.5 31.8 31.8 4.97 263 31.8 31.8 31.8 31.8 4.97 263 31.8 31.8 31.8 31.8 31.8 4.90 4.97 51.8 31.8 31.8 31.8 31.8 31.8 32.4 48.5 31.8 32.4 48.5 32.4 48.5 31.8 32.3 32.3 32.3 32.3 </td <td>_</td> <td>3.7</td> <td>49.0</td> <td>123</td> <td>54.4</td> <td>HZ</td> <td></td> <td></td> <td>0913</td> <td>222</td> <td>419</td> <td>5.31</td> <td>21.2</td> <td>100.0</td> <td>t <</td> <td>, ,</td>	_	3.7	49.0	123	54.4	HZ			0913	222	419	5.31	21.2	100.0	t <	, ,
34 13.6 119 24.6 NH 01 07 22 0707 210 429 4.90 157 17 3.51 177 100.0 9 34 10.7 119 30.5 NH 01 07 22 0707 210 429 4.90 154 51.8 6 33 4.8 120 24.6 NH 01 07 21 218 208 418 4.97 263 51.8 6 33 34.5 120 45.5 NH 01 07 21 208 449 4.65 234 48.5 36 31 4.4 120 08.0 NH 01 07 21 209 4.40 4.65 234 48.5 36 32 4.4 120 08.0 NH 01 07 20 219 4.40 4.65 234 48.5 36 36 33 36	34 13.6 119 24.6 NH 01 07 22 0927 27 77 3.51 117 100.0 9 34 10.7 119 30.5 NH 01 07 22 0707 210 429 4.90 154 51.5 14 33 44.8 120 24.6 NH 01 07 21 80.8 418 4.97 263 51.8 8 33 34.5 120 44.6 NH 01 07 21 188 4.90 234 48.5 34 34 120 48.9 NH 01 07 21 60.8 44.9 4.65 234 48.5 36 34 120 48.9 NH 01 07 21 20.9 44.9 4.65 234 48.5 36 34 122 48.9 NH 01 07 20 211 425		£ ;	8.91	120	6.00	HN			1721	212	378	5.62	402	50.6	75	,
34 10.7 119 30.5 NH 01 07 22 0707 210 429 4.90 154 51.5 14 33 52.8 120 08.3 NH 01 07 21 186 364 4.55 74 51.8 6 33 44.8 120 24.6 NH 01 07 21 88 48 4.97 263 51.8 6 33 44.8 120 44.9 4.65 234 48.5 36 36 34 120 45.5 NH 01 07 21 100 449 4.65 234 48.5 36 32 34.7 122 08.0 NH 01 07 21 449 4.65 234 48.5 36.4 32 34.7 122 08.0 NH 01 07 20 201 447 4.99 52.3 23 24	34 10.7 119 30.5 NH 01 07 22 0707 210 4.90 154 51.5 14 33 52.8 120 08.3 NH 01 07 21 20.8 44.8 4.55 74 51.8 6 33 44.8 120 24.6 NH 01 07 21 1665 209 449 4.65 234 48.5 36 33 14.7 121 26.5 NH 01 07 21 1605 209 449 4.65 234 48.5 36 32 54.6 122 08.0 NH 01 07 21 200 449 4.65 234 48.5 36 34.7 122 08.0 NH 01 07 20 211 425 4.90 51.8 8 36.4 4.55 37.4 48.5 36 36.4 37.8 36.4 <td< td=""><td></td><td>4 5</td><td>13.6</td><td>119</td><td>24.6</td><td>HN</td><td></td><td></td><td>0927</td><td>27</td><td>77</td><td>3.51</td><td>117</td><td>100.0</td><td>67</td><td>25,5</td></td<>		4 5	13.6	119	24.6	HN			0927	27	77	3.51	117	100.0	67	25,5
35 2.8 120 08.3 NH 01 07 22 0048 166 364 4.55 74 51.8 6 33 44.8 120 24.6 NH 01 07 21 208 418 4.97 263 51.8 6 33 34.5 120 45.5 NH 01 07 21 1605 209 449 4.65 234 48.5 36 32 34.7 121 26.5 NH 01 07 21 1605 209 449 4.65 234 48.5 36 32 34.7 122 08.0 NH 01 07 20 2119 211 420 52.3 50.4 23 50.4 23 36.4 48.5 56.4 48.5 36 36.4 48.5 48.5 48.5 36.4 48.5 36.4 48.5 36.4 48.5 36.4 37.3 37.3	35 2.8 120 08.3 NH 01 07 22 0048 166 364 4.55 74 51.8 6 33 44.8 120 24.6 NH 01 07 21 218 208 418 4.97 263 51.8 8 33 44.8 120 45.5 NH 01 07 21 209 449 4.65 234 48.5 36 34 120 45.5 NH 01 07 21 209 449 4.65 234 48.5 36 32 44.7 121 26.5 NH 01 07 20 209 449 4.65 234 48.5 36 32 44.7 122 48.9 NH 01 07 20 211 475 440 93 52.3 2 34 48.8 10.2 NH 01 07 20 <td< td=""><td></td><td>ج 4 ز</td><td>10.7</td><td>119</td><td>30.5</td><td>HZ</td><td></td><td></td><td>0707</td><td>210</td><td>429</td><td>4.90</td><td>154</td><td>51.5</td><td>17</td><td>, ,</td></td<>		ج 4 ز	10.7	119	30.5	HZ			0707	210	429	4.90	154	51.5	17	, ,
35 44,8 120 24.6 NH 01 07 211 208 418 4,97 263 51.8 8 33 34,5 120 45.5 NH 01 07 21 1605 209 449 4,65 234 48.5 36 33 34,5 120 65.5 NH 01 07 21 608 209 449 4,65 234 48.5 36 32 54,6 122 08.0 NH 01 07 21 0306 200 454 440 93 52.3 36.4 <td>35 44.8 120 24.6 NH 01 07 21 2118 208 418 4.97 263 51.8 8 33 34.5 120 45.5 NH 01 07 21 1605 209 449 4.65 234 48.5 36 33 14.7 121 26.5 NH 01 07 21 1605 209 449 4.65 234 48.5 36 32 34.7 122 08.0 NH 01 07 21 0805 210 447 4.40 93 52.3 2 3 3 3 3 3 3 3 3 3 3 4.40 93 52.3 3 3 3 3 3 3 3 3 3 3 3 3 4 4 4 4 4 4 4 3 3 3 3 3 3<!--</td--><td></td><td>3 ;</td><td>27.8</td><td>120</td><td>08.3</td><td>HZ</td><td></td><td></td><td>0048</td><td>166</td><td>364</td><td>4.55</td><td>74</td><td>21.5</td><td>. 9</td><td>, ×</td></td>	35 44.8 120 24.6 NH 01 07 21 2118 208 418 4.97 263 51.8 8 33 34.5 120 45.5 NH 01 07 21 1605 209 449 4.65 234 48.5 36 33 14.7 121 26.5 NH 01 07 21 1605 209 449 4.65 234 48.5 36 32 34.7 122 08.0 NH 01 07 21 0805 210 447 4.40 93 52.3 2 3 3 3 3 3 3 3 3 3 3 4.40 93 52.3 3 3 3 3 3 3 3 3 3 3 3 3 4 4 4 4 4 4 4 3 3 3 3 3 3 </td <td></td> <td>3 ;</td> <td>27.8</td> <td>120</td> <td>08.3</td> <td>HZ</td> <td></td> <td></td> <td>0048</td> <td>166</td> <td>364</td> <td>4.55</td> <td>74</td> <td>21.5</td> <td>. 9</td> <td>, ×</td>		3 ;	27.8	120	08.3	HZ			0048	166	364	4.55	74	21.5	. 9	, ×
35 34.5 120 45.5 NH 01 07 21 1605 209 449 4.65 234 48.5 36 33 14.7 121 26.5 NH 01 07 21 0837 212 433 4,90 233 50.4 2 32 54.6 122 08.0 NH 01 07 20 2119 211 425 4,96 191 51.8 1 32 34.7 122 48.9 NH 01 07 20 1523 196 447 4,39 51.8 1 31 54.8 124 10.2 NH 01 07 20 147 4,39 51.8 1 31 54.8 10.2 NH 01 07 17 1106 51 409 5.24 39 100.0 13 33 53.4 118 58.5 NH 01 07	35 34.5 120 45.5 NH 01 07 21 1605 209 449 4.65 234 48.5 36 33 14.7 121 26.5 NH 01 07 21 0837 212 433 4.90 233 50.4 2 32 54.6 122 08.0 NH 01 07 20 2119 211 425 4.96 191 51.8 1 32 34.7 122 48.9 NH 01 07 20 2119 211 425 4.96 191 51.8 1 31 54.8 122 NH 01 07 20 116 447 4.39 51.8 1 31 54.8 124 10.2 NH 01 07 17 1106 51 108 4.70 130 100.0 13 33 54.6 118 35.0 NH		3,	8.4.6	071	24.6	HZ ;			2118	208	418	4.97	263	51.8	~	, ,
35 14.7 121 26.5 NH 01 07 21 0837 212 433 4.90 233 50.4 2 32 54.6 122 08.0 NH 01 07 21 0306 200 454 4.40 93 50.4 2 32 34.7 122 48.9 NH 01 07 20 2119 211 425 4.96 191 51.8 1 31 54.8 10.2 NH 01 07 20 1523 196 447 4.39 51 100.0 13 31 54.8 10.2 NH 01 07 20 0805 214 409 5.24 39 100.0 41 33 53.3 118 29.4 NH 01 07 17 138 20 416 4.85 86 50.0 13 33 29.4 118 38.9	35 14.7 121 26.5 NH 01 07 21 0837 212 433 4,90 233 50.4 2 32 54.6 122 08.0 NH 01 07 21 0306 200 454 440 93 52.3 2 32 34.7 122 48.9 NH 01 07 20 2119 211 425 4,96 191 51.8 1 31 54.8 124 10.2 NH 01 07 20 1523 196 447 4,39 51 100.0 13 31 54.8 10.2 NH 01 07 17 1106 51 108 470 130 100.0 13 33 53.4 118 58.5 NH 01 07 17 1358 202 416 48.5 86 50.0 13 33 59.4 119		3 6	54.5	071	45.5	HN ;			1605	500	449	4.65	234	48.5	36	
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31 54.8 12.5 30.0 NH 01 07 20 1523 196 447 4.39 51 100.0 13 31 54.8 124 10.2 NH 01 07 20 0805 214 409 5.24 39 100.0 41 33 53.3 118 29.4 NH 01 07 17 1106 51 108 4.70 130 100.0 5 33 49.6 118 37.6 NH 01 07 17 1358 202 416 4.85 86 50.0 13 33 29.4 119 19.1 NH 01 07 17 1748 223 431 5.18 46 100.0 7 33 29.4 119 39.9 NH 01 07 18 1108 80 167 4.78 78 100.0 33 99.2 120 00.5 NH 01 07 18 1830 219 439 5.00 141 51.6 5 32 59.3 120 21.3 NH 01 07 18 18 2219 <td< td=""><td>31 54.8 125 30.0 NH 01 07 20 1523 196 447 4.39 51 100.0 13 31 54.8 124 10.2 NH 01 07 20 0805 214 409 5.24 39 100.0 41 33 53.3 118 29.4 NH 01 07 17 1106 51 108 4.70 130 100.0 5 33 49.6 118 37.6 NH 01 07 17 1358 202 416 4.85 86 50.0 13 33 29.4 119 19.1 NH 01 07 17 1748 223 431 5.18 46 100.0 7 33 19.4 119 39.9 NH 01 07 18 1108 80 167 4.78 78 100.0 23 33 120 21.3 NH 01 07 18 188 2219 218 435</td><td></td><td>35</td><td>74.7</td><td>122</td><td>48.9</td><td>HN .</td><td></td><td></td><td>2119</td><td>211</td><td>425</td><td>4.96</td><td>191</td><td>51.8</td><td>٠</td><td></td></td<>	31 54.8 125 30.0 NH 01 07 20 1523 196 447 4.39 51 100.0 13 31 54.8 124 10.2 NH 01 07 20 0805 214 409 5.24 39 100.0 41 33 53.3 118 29.4 NH 01 07 17 1106 51 108 4.70 130 100.0 5 33 49.6 118 37.6 NH 01 07 17 1358 202 416 4.85 86 50.0 13 33 29.4 119 19.1 NH 01 07 17 1748 223 431 5.18 46 100.0 7 33 19.4 119 39.9 NH 01 07 18 1108 80 167 4.78 78 100.0 23 33 120 21.3 NH 01 07 18 188 2219 218 435		35	74.7	122	48.9	HN .			2119	211	425	4.96	191	51.8	٠	
33 53.3 118 29.4 NH 01 07 20 0805 214 409 5.24 39 100.0 41 33 53.3 118 29.4 NH 01 07 17 1106 51 108 4.70 130 100.0 5 33 49.6 118 37.6 NH 01 07 17 138 202 416 4.85 86 50.0 13 33 29.4 119 19.1 NH 01 07 18 0732 216 434 4.99 129 48.2 19 33 19.4 119 39.9 NH 01 07 18 1830 219 439 5.00 141 51.6 5 33 120 21.3 NH 01 07 18 1830 219 439 5.02 85 51.3 3 32 59.3 120 21.3 NH 01 07 18 18 2219 218 435 <t< td=""><td>33 53.3 118 29.4 NH 01 07 20 0805 214 409 5.24 39 100.0 41 33 53.3 118 29.4 NH 01 07 17 1106 51 108 4.70 130 100.0 5 33 49.6 118 37.6 NH 01 07 17 138 223 416 4.85 86 50.0 13 33 29.4 119 19.1 NH 01 07 18 223 431 5.18 46 100.0 7 33 29.4 119 19.1 NH 01 07 18 18 0732 216 434 4.99 129 48.2 19 33 19.4 119 39.9 NH 01 07 18 1830 219 478 78 100.0 23 32 59.3 120 21.3 NH 01 07 18 18 218 435 5.02 <t< td=""><td></td><td>7 ==</td><td>54.8</td><td>127</td><td>30.0</td><td>H</td><td></td><td></td><td>1523</td><td>196</td><td>447</td><td>4.39</td><td>51</td><td>100.0</td><td>13</td><td>51</td></t<></td></t<>	33 53.3 118 29.4 NH 01 07 20 0805 214 409 5.24 39 100.0 41 33 53.3 118 29.4 NH 01 07 17 1106 51 108 4.70 130 100.0 5 33 49.6 118 37.6 NH 01 07 17 138 223 416 4.85 86 50.0 13 33 29.4 119 19.1 NH 01 07 18 223 431 5.18 46 100.0 7 33 29.4 119 19.1 NH 01 07 18 18 0732 216 434 4.99 129 48.2 19 33 19.4 119 39.9 NH 01 07 18 1830 219 478 78 100.0 23 32 59.3 120 21.3 NH 01 07 18 18 218 435 5.02 <t< td=""><td></td><td>7 ==</td><td>54.8</td><td>127</td><td>30.0</td><td>H</td><td></td><td></td><td>1523</td><td>196</td><td>447</td><td>4.39</td><td>51</td><td>100.0</td><td>13</td><td>51</td></t<>		7 ==	54.8	127	30.0	H			1523	196	447	4.39	51	100.0	13	51
33 49.6 118 37.6 NH 01 07 17 1106 51 108 4.70 130 100.0 5 33 49.6 118 37.6 NH 01 07 17 1358 202 416 4.85 86 50.0 13 33 29.4 118 58.5 NH 01 07 17 1748 223 431 5.18 46 100.0 7 33 29.4 119 19.1 NH 01 07 18 0732 216 434 4.99 129 48.2 19 33 19.4 119 39.9 NH 01 07 18 1830 219 478 78 100.0 23 32 59.3 120 21.3 NH 01 07 18 1830 219 439 5.02 85 51.3 32 39.7 121 01.7 NH 01 07 19 0348 216 437 494 263 51.3	33 49.6 118 37.6 NH 01 07 17 1106 51 108 4.70 130 100.0 5 33 49.6 118 37.6 NH 01 07 17 1358 202 416 4.85 86 50.0 13 33 29.4 118 58.5 NH 01 07 17 1748 223 431 5.18 46 100.0 7 33 29.4 119 19.1 NH 01 07 18 108 80 167 4.78 78 100 33 90.2 120 00.5 NH 01 07 18 1830 219 439 5.00 141 51.6 5 32 59.3 120 21.3 NH 01 07 18 1830 219 439 5.02 85 51.3 3 32 39.7 121 01.7 NH 01 07 19 0348 216 437 4.94 263 51.3 6		33	52.2	110	7.00				0805	214	409	5.24	39	100.0	41	8
33 39.4 118 58.5 NH 01 07 17 1748 223 416 4.85 86 50.0 13 33 39.4 118 58.5 NH 01 07 17 1748 223 431 5.18 46 100.0 7 33 29.4 119 19.1 NH 01 07 18 108 80 167 4.78 78 100 23 33 99.2 120 00.5 NH 01 07 18 1830 219 439 5.00 141 51.6 5 32 59.3 120 21.3 NH 01 07 18 2219 218 435 5.02 85 51.3 3 32 39.7 121 01.7 NH 01 07 19 0348 216 437 494 263 51.3	33 39.4 118 58.5 NH 01 07 17 1358 202 416 4.85 86 50.0 13 33 39.4 118 58.5 NH 01 07 17 1748 223 431 5.18 46 100.0 7 33 29.4 119 19.1 NH 01 07 18 0732 216 434 4.99 129 48.2 19 33 19.4 119 39.9 NH 01 07 18 1108 80 167 4.78 78 100.0 23 34 120 00.5 NH 01 07 18 1830 219 439 5.00 141 51.6 5 32 59.3 120 21.3 NH 01 07 18 2219 218 435 5.02 85 51.3 3 32 39.7 121 01.7 NH 01 07 18 216 437 4.94 263 <		3 %	49.6	110	27.4	H			1106	51	108	4.70	130	100.0	. 2	18
33 29.4 118 38.5 NH 01 07 17 1748 223 431 5.18 46 100.0 7 7 17 17 17 17 17 17 17 17 17 17 17 17	33 29.4 118 38.5 NH 01 07 17 1748 223 431 5.18 46 100.0 7 7 17 1748 223 431 5.18 46 100.0 7 7 18 19.4 119 19.1 NH 01 07 18 0732 216 434 4.99 129 48.2 19 48.2 19 19.4 119 39.9 NH 01 07 18 1108 80 167 4.78 78 100.0 23 32 59.3 120 21.3 NH 01 07 18 2219 218 435 5.02 85 51.3 3 3 3 39.7 121 01.7 NH 01 07 19 0348 216 437 4.94 263 51.3 6		22	20.7	011	57.0	E ;			1358	202	416	4.85	98	50.0	13	
33 19.4 119 19.1 NH 01 07 18 0732 216 434 4.99 129 48.2 19 33 19.4 119 39.9 NH 01 07 18 1108 80 167 4.78 78 100.0 23 33 09.2 120 00.5 NH 01 07 18 1830 219 439 5.00 141 51.6 5 32 59.3 120 21.3 NH 01 07 18 2219 218 435 5.02 85 51.3 3 32 39.7 121 01.7 NH 01 07 19 0348 216 437 4.94 2.63 51.3	33 19.4 119 19.1 NH 01 07 18 0732 216 434 4.99 129 48.2 19 33 19.4 119 39.9 NH 01 07 18 1108 80 167 4.78 78 100.0 23 33 09.2 120 00.5 NH 01 07 18 1830 219 439 5.00 141 51.6 5 32 59.3 120 21.3 NH 01 07 18 2219 218 435 5.02 85 51.3 3 32 39.7 121 01.7 NH 01 07 19 0348 216 437 4.94 263 51.3 6		22	4.40	118	28.5	HZ ;			1748	223	431	5.18	46	100.0	7	-
33 19.4 119 39.9 NH 01 07 18 1108 80 167 4.78 78 100.0 23 33 09.2 120 00.5 NH 01 07 18 1830 219 439 5.00 141 51.6 5 32 59.3 120 21.3 NH 01 07 18 2219 218 435 5.02 85 51.3 3 32 39.7 121 01.7 NH 01 07 19 0348 216 437 4.94 2.63 51.3	33 19.4 119 39.9 NH 01 07 18 1108 80 167 4.78 78 100.0 23 33 09.2 120 00.5 NH 01 07 18 1830 219 439 5.00 141 51.6 5 32 59.3 120 21.3 NH 01 07 18 2219 218 435 5.02 85 51.3 3 32 39.7 121 01.7 NH 01 07 19 0348 216 437 4.94 263 51.3 6		00	4.67	611	19.1	HZ.		18	0732	216	434	4.99	129	48.2	10	•
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	0 21.3 0		37	39.7	121	01.7	HN	_	19	0348	216	437	7 07	363	51.5	٠ ر	7 ;

		l otal Eggs	13	39	151	106	427	5	∞	81	0	28	18	171	191	130	70	84	48	30	9	9	3	0	0	46	∞	∞	500	16	353	250	83	32
	.	lotal Larvae	0	16	47	224	14	19	2	46		12	9	86	149	35	265	441	999	17	37	28	14	5	7	2	9	6	151	152	21	292	170	363
		Percent Sorted	48.7	100.0	100.0	100.0	100.0	46.8	52.6	100.0	51.8	47.6	45.4	100.0	100.0	100.0	100.0	100.0	100.0	51.8	50.0	100.0	48.1	20.0	20.0	51.5	47.1	46.6	100.0	100.0	100.0	100.0	100.0	100.0
	į	Plankton Volume	86	45	39	45	71	109	90	54	2	82	74	25	42	53	27	23	33	71	62	54	182	86	11	77	141	96	44	40	35	49	28	42
	Standard	Haul Factor	5.17	4.81	5.39	4.14	5.15	4.34	5.10	4.36	5.18	3.92	4.91	4.26	4.33	4.08	4.11	3.52	3.88	6.01	5.16	4.95	5.11	4.98	4.95	5.16	5.75	4.46	4.44	4.73	4.74	5.10	4.22	4.44
	Volume	water Strained	418	427	410	467	420	431	420	446	420	494	446	473	494	492	512	561	517	382	417	441	435	429	440	431	376	469	475	449	451	432	207	479
0107	Tow	Depth (m)	216	205	221	193	216	187	214	195	218	193	219	202	214	201	211	198	201	229	215	219	222	214	218	222	216	500	211	212	214	220	214	212
		Time (PST)	0839	1533	2107	0245	0432	0154	1927	1341	0605	0052	1958	1358	0631	0030	1843	1156	0139	1145	1451	1835	2251	0244	0641	1056	1609	2003	0152	0821	1600	0014	0846	1646
CalCOFI Cruise	, F	I ow Date yr. mo. day	07 1	_	_	01 07 20	07	07	07	07	0.7	0.7	0.2	_	0.1	0.7	07	07	07	0.7	0.7	0.	0.2	0.7	0.7	02	02	07	07	03	07	0.2	01 07 13	02
		Ship Code	HN	HN	HN	HN	HN	HN	HN	HN	HN	HN	HN	HN	HN	HN	HZ	HN	HN	HN	HN	NH	NH	HN	HN	HZ	HN	HN	HZ	HN	HN	NH	HN	HZ
		Longitude (W) deg. min.				123 44.3																												
		nde (N) min.				19.7																												
$\overline{}$	·,					31																												
Table 5. (cont.)		Station	80.0	90.0	100.0	110.0	28.0	30.0	35.0	37.0	45.0	53.0	0.09	70.0	80.0	90.0	100.0	110.0	120.0	26.7	28.0	30.0	35.0	40.0	45.0	50.0	55.0	0.09	70.0	80.0	90.0	100.0	110.0	120.0
Table 5		Line	86.7	86.7	86.7	86.7	0.06	90.0	0.06	0.06	90.0	90.0	90.0	0.06	90.0		0.06 52	0.06	90.0	93.3	93.3	93.3	93.3	93.3	93.3	93.3	93.3	93.3	93.3	93.3	93.3	93.3	93.3	93.3

Total Larvae 301 286 19 Percent Sorted Plankton Volume Standard Factor Haul Volume Water Strained Tow Depth (m) Time (PST) yr. mo. day Tow Date Ship Code Longitude (W) deg. min. Latitude (N) deg. min. 49.3 40.0 29.6 19.7 Station 49.0 55.0 660.0 660.0 660.0 55.0 660.0 670 Line

0 317 130 16 2

Total Eggs

0110

CalCOFI Cruise

Table 5. (cont.)

585 146 226 226 121 32 3 0 0 27 15 15 53

Table 5	Table 5. (cont.)						•	CalCOF	CalCOFI Cruise	0110						
										Tow	Volume	Standard				
		Latit	Latitude (N)	Longit	Longitude (W)	Ship	Tow	Tow Date	Time	Depth	Water	Haul	Plankton	Percent	Total	Total
Line	Station	deg.	min.	deg.	min.	Code	yr. n	yr. mo. day		(m)	Strained	Factor	Volume	Sorted	Larvae	Eggs
200	9	;	703	123		HIN	5	20		•	897	4 30	00	1000	20	24
20.7	200	7 .	0.60	771			5 5	11 02		•	707	(C. F	30	1000	2 8	, c
86.7	100.0	31	40.7	173		IZ	5	70 11			480	4.40	33	100.0	90	3 (
86.7	110.0	31	19.7	123		H	01				475	4.60	55	100.0	19	63
0.06	28.0	33	28.8	117		HN	01				117	4.09	111	100.0	4	10
0.06	30.0	33	25.0	117		HZ	01				452	4.44	55	100.0	2	2
90.0	35.0	33	15.1	118		NH	01				443	4.76	81	52.7	70	44
0.06	37.0	33	11.1	118		NH	01				442	4.78	70	54.8	7	∞
0.06	45.0	32	55.1	118		HN	01				454	4.59	35	100.0	5	2
0.06	53.0	32	38.9	119		NH	01				459	4.34	124	8.05	3	3
0.06	0.09	32	24.9	119		HN	01				461	4.60	239	53.6	5	15
0.06	70.0	32	05.1	120		HN	01				451	4.60	122	50.9	3	2
0.06	80.0	31	45.1	121		HN	01				496	4.21	131	100.0	14	10
90.0	90.0	31	24.9	122		HN	01				467	4.47	99	100.0	69	15
0.06	100.0	31	05.1	122		HN	01				453	4.79	115	100.0	26	44
90.0	110.0	30	45.1	123		HN	01				486	4.17	28	100.0	112	24
90.0	120.0	30	25.1	123		HN	01				476	4.38	55	100.0	52	19
93.3	26.7	32	57.4	117		HZ	01				113	3.71	53	100.0	2	6
93.3	28.0	32	54.8	117		HN	01				443	4.73	29	100.0	-	7
93.3	30.0	32	8.09	117	31.9	HN	01	10 25	1709	198	479	4.14	52	100.0	11	<i>L</i> 9
93.3	35.0	32	40.8	117		HN	01				462	4.37	71	48.4	3	21
93.3	40.0	32	30.8	118		NH	01				461	4.34	115	52.8	5	3
93.3	45.0	32	21.1	118		HN	01				436	5.12	71	48.3	6	4
93.3	50.0	32	10.9	118		HN	01				451	4.74	69	51.6	3	4
93.3	55.0	32	8.00	119		NH	01				431	5.07	267	47.8	_	4
93.3	0.09	31	50.8	119		HN	01				474	4.32	120	8.09	3	∞
93.3	70.0	31	30.8	120		HN	01				465	4.32	146	50.0	0	4
93.3	80.0	31	10.9	120		HN	01	10 27			441	4.72	118	100.0	3	16
93.3	0.06	30	50.8	121		HN	01				465	4.42	30	100.0	81	19
93.3	100.0	30	30.8	122		HN	01				457	4.44	94	100.0	34	113
93.3	110.0	30	10.9	122		HZ	01	_			464	4.44	20	100.0	40	20
93.3	120.0	29	51.2	123		HN	01	_			462	4.42	52	100.0	09	57

TABLE 6. Pooled occurrences of fish larvae taken in Bongo net tows on CalCOFI cruises in 2001.

Rank	Taxon	Occurrences
1	Engraulis mordax	86
2	Protomyctophum crockeri	79
3	Leuroglossus stilbius	75
4	Sebastes spp.	72
5	Citharichthys stigmaeus	70
6	Citharichthys sordidus	63
7	Stenobrachius leucopsarus	59
8	Merluccius productus	58
9	Bathylagus wesethi	56
10	Vinciguerria lucetia	53
10	Bathylagus ochotensis	53
12	Diogenichthys atlanticus	47
13	Triphoturus mexicanus	44
14	Symbolophorus californiensis	42
15	Diaphus spp.	38
15	Cyclothone signata	38
17	Nannobrachium ritteri	34
18	Ceratoscopelus townsendi	33
19	Sardinops sagax	29
20	Nannobrachium spp.	25
21	Chauliodus macouni	23
22	Trachurus symmetricus	20
23	Tarletonbeania crenularis	19
24	Microstoma spp.	18
25	Idiacanthus antrostomus	17
25	Danaphos oculatus	17
27	Cyclothone spp.	16
28	Melamphaes lugubris	14
28	Tetragonurus cuvieri	14
28	Sebastes jordani	14
31	Myctophum nitidulum	13
32	Sternoptyx spp.	12
33	Sebastes diploproa	10
33	Genyonemus lineatus	10
33	Nansenia candida	10
36	Argentina sialis	9
36	Argyropelecus sladeni	9
36	Scopelogadus bispinosus	9
39	Lestidiops ringens	8
39	Icichthys lockingtoni	8
39	Coryphopterus nicholsii	8
39	Chiasmodon niger	8
39	Lampadena urophaos	8
44	Microstomus pacificus	7
45	Ichthyococcus irregularis	6
45	Gigantactis spp.	6
45	Vinciguerria poweriae	6
45	Sebastes paucispinis	6
49	Paralichthys californicus	5

Arctozenus risso 5	TABLE 6. (cont.)	Taxon	Occurrences
Rosenblattichthys volucris 5			5
49 Argyropelecus affinis 49 Argyropelecus affinis 51 Alyopsetta exilis 52 Lyopsetta exilis 53 Lyopsetta exilis 54 Argyropelecus lychnus 55 Hygophum reinhardtii 55 Argyropelecus lychnus 55 Cololabis saira 55 Argyropelecus lychnus 55 Benthalbella dentata 56 Aristostomias scintillans 57 Tactostomia macropus 58 Benthalbella dentata 59 Benthalbella dentata 50 Benthalbella dentata 51 Benthalbella dentata 52 Benthalbella gentata 53 Benthalbella gentata 54 Benthalbella gentata 55 Benthalbella gentata 56 Benthalbella gentata 57 Benthalbella gentata 58 Benthalbella gentata 59 Benthalbella gentata 59 Benthalbella gentata 50 Benthalbella gentata 50 Benthalbella gentata 50 Benthalbella gentata 50 Benthalbella gentata 51 Benthalbella gentata 52 Benthalbella gentata 53 Benthalbella gentata 54 Benthylagus pacificus 55 Benthalbella gentata 56 Benthalbella gentata 57 Benthalbella gentata 58 Benthalbella gentata 59 Benthalbella gentata 59 Benthalbella gentata 59 Benthalbella gentata 59 Benthalbella gentata 50 Benthalbella gentata 50 Benthalbella gentata 50 Benthalbella gentata 51 Benthalbella gentata 52 Benthalbella gentata 53 Benthalbella gentata 54 Benthylagus gentheri 55 Benthalbella gentata 56 Benthalbella gentata 57 Benthalbella gentata 58 Benthalbella gentata 59 Benthalbella gentata 50 Benthalbella gentata 51 Benthalbella gentata 51 Benthalbella gentata 54 Benthylagus milleri 55 Benthalbella gentata 56 Benthalbella gentata 57 Benthalbella gentata 57 Benthalbella gentata 58 Benthalbella gentata 59 Benthalbella gentata 59 Benthalbella gentata 59 Benthalbella gentata 59 Benthalbella gentata 50 Benthalbella gentata 50			5
49 Notoscopelus resplendens 55 Lyopsetta extilis 55 Myctophidae 55 Hygophum reinhardtii 55 Argyropelecus lychnus 55 Aristostomias scintillans 55 Aristostomias scintillans 55 Aristostomias scintillans 55 Benthalbella dentata 56 Asimias arriventer 57 Benthalbella dentata 58 Benthalbella dentata 59 Benthalbella dentata 50 Benthalbella dentata 50 Benthalbella dentata 51 Benthalbella dentata 52 Benthalbella dentata 53 Benthalbella dentata 54 Aristostomias arriventer 55 Benthalbella dentata 56 Benthalbella dentata 57 Benthalbella dentata 58 Benthalbella dentata 59 Benthalbella dentata 50 Benthalbella dentata 50 Benthalbella dentata 51 Benthalbella dentata 52 Benthalbella dentata 53 Benthalbella dentata 54 Arachiperus altivelis 55 Benthalbella dentata 56 Benthalbella dentata 57 Benthalbella dentata 58 Benthalbella dentata 59 Benthalbella dentata 50 Benthalbella dentata 50 Benthalbella dentata 50 Benthalbella dentata 50 Benthalbella dentata 51 Benthalbella dentata 52 Benthalbella dentata 53 Benthalbella dentata 54 Benthalbella dentata 55 Benthalbella dentata 56 Benthalbella dentata 57 Benthalbella dentata 58 Benthalbella dentata 59 Benthalbella dentata 50 Benthalbella dentata 50 Benthalbella dentata 51 Benthalbella dentata 52 Benthalbella dentata 53 Benthalbella dentata 54 Benthalbella dentata 55 Benthalbella dentata 56 Benthalbella dentata 57 Benthalbella dentata 58 Benthalbella dentata 59 Benthalbella dentata 59 Benthalbella dentata 50 Benthalbella dentata 50 Benthalbella dentata 51 Benthalbella dentata 54 Benthalbella dentata 55 Benthalbella dentata 56 Benthalbella dentata 57 Benthalbella dentata 58 Benthalbella dentata 59 Benthalbella dentata 59 Benthalbella dentata 50 Benthalbella dentata 50 Benthalbella dentata 50 Benthalbella dentata 51 Benthalbella dentata 51 Benthalbella dentata 52 Benthalbella dentata 54 Benthalbella dentata 55 Benthalbella dentata 56 Benthalbella dentata 57 Benthalbella dentata 58 Benthalbella			
Sebastes aurora 55			
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Fig. 65 Hygophum reinharditi 4 Fig. 65 Argyropelecus lychmus Fig. 65 Cololabis saira Fig. 65 Hypsoblenmius jenkinsi Fig. 65 Hypsoblenmius jenkinsi Fig. 66 Aristostomias scintillans Fig. 66 Aristostomias scintillans Fig. 67 Aristostomias scintillans Fig. 68 Benthalbella dentata Fig. 68 Benthalbella dentata Fig. 69 Benthalbella dentata Fig. 60 Aristostomias atriventer Fig. 60 Aristostomias atriventer Fig. 61 Aristostomias atriventer Fig. 62 Aristostomias atriventer Fig. 63 Aristostomias atriventer Fig. 64 Aristostomias atriventes Fig. 64 Aristostomias atriv		• •	
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55 Cololabis saira 4 55 Hypsoblennius jenkinsi 4 55 Aristostomias scintillans 4 55 Tactostoma macropus 4 56 Benthalbella dentata 4 56 Electrona risso 3 66 Electrona risso 3 67 Vinciguerria spp. 3 68 Bathylagus pacificus 4 69 Bathylagus pacificus 3 60 Promitra crassiceps 3 60 Promitra crassiceps 3 61 Promitra crassiceps 3 62 Promitra crassiceps 3 63 Promitra crassiceps 3 64 Promitra crassiceps 3 65 Promitra crassiceps 3 66 Promitra crassiceps 3 67 Promitra crassiceps 3 68 Promitra crassiceps 3 69 Promitra crassiceps 3 60 Promitra crassiceps 3 61 Promitra crassiceps 3 62 Promitra crassiceps 3 63 Promitra crassiceps 3 64 Promitra crassiceps 3 65 Promitra crassiceps 3 66 Promitra crassiceps 3 67 Promitra crassiceps 3 68 Promitra crassiceps 3 69 Promitra crassiceps 3 60 Promitra crassiceps 3 61 Promitra crassiceps 3 62 Promitra crassiceps 3 63 Promitra crassiceps 3 64 Promitra guentheri 3 65 Promitra crassiceps 3 66 Promitra crassiceps 3 67 Promitra crassiceps 3 68 Promitra crassiceps 3 69 Promitra crassiceps 3 60 Promitra crassiceps 3 60 Promitra crassiceps 3 61 Promitra crassiceps 3 62 Promitra crassiceps 3 63 Promitra crassiceps 3 64 Promitra crassiceps 3 65 Promitra crassiceps 3 66 Promitra crassiceps 3 66 Promitra crassiceps 3 67 Promitra crassiceps 3 68 Promitra crassiceps 3 69 Promitra crassiceps 4 60 Promitra crassiceps 3 60 Promitra crassiceps 3 60 Promitra crassiceps 3 60 Promitra crassiceps 3 61 Promitra crassiceps 4 62 Promitra crassiceps 4 64 Promitra trassiceps 4 64 Promitra trassiceps 4 64 Promitra crassiceps 4 65 Promitra crassiceps 4 66 Promitra crassiceps 4 66 Promitra crassiceps 4 66 Promitra crassiceps 4 66 Promitra crassiceps 4 67 Promitra crassiceps 4 68 Promitra crassiceps 4 68 Promitra crassiceps 4 69 Promitra crassiceps 4 69 Promitra crassiceps 4 69 Promitra crassiceps 4 60 Promitra crassiceps 4			
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91 Bathylagus milleri		Lepidopsetta bilineata	
		Glyptocephalus zachirus	1

TABLE 6. (cont.)			
Rank	Taxon		Occurrences
91	Argyropelecus spp.		1
91	Citharichthys spp.		1
91	Scorpaenichthys marmoratus		- 1
91	Pleuronichthys ritteri		1
91	Sebastolobus alascanus		1
91	Disintegrated fish larvae		1
91	Loweina rara		1
91	Oneirodes spp.		1
91	Diogenichthys laternatus		1
91	Atherinopsis californiensis		1
91	Melamphaidae		1
91	Melamphaes spp.		1
91	Notolychnus valdiviae		1
91	Nannobrachium hawaiiensis		1
91	Nannobrachium bristori		1
91	Liparis mucosus		1
91	Sebastolobus spp.		1
91	Paralabrax spp.		1
91	Zaniolepis latipinnis		1
91	Artedius lateralis		1
91	Synodus lucioceps		1
91	Scopelosaurus spp.		1
91	Leptocottus armatus		1
91	Cyema atrum		1
91	Odontopyxis trispinosa		1
91	Howella spp.		1
91	Melanostomiinae		1
91	Howella pammelas		1
91	Lampanyctus tenuiformes		1
		Total	1547

TABLE 7. Pooled counts of fish larvae taken in Bongo net tows on CalCOFI cruises in 2001. Counts are adjusted for percent of sample sorted and standard haul factor (see text).

Rank	Taxon	Count
1	Sardinops sagax	13657
2	Vinciguerria lucetia	12989
3	Engraulis mordax	11112
4	Sebastes spp.	5622
5	Leuroglossus stilbius	2658
6	Bathylagus wesethi	2141
7	Merluccius productus	2098
8	Stenobrachius leucopsarus	1734
9	Citharichthys sordidus	1584
10	Citharichthys stigmaeus	1571
11	Ceratoscopelus townsendi	823
12	Protomyctophum crockeri	820
13	Bathylagus ochotensis	770
14	Triphoturus mexicanus	714
15	Diaphus spp.	680
16	Diogenichthys atlanticus	626
17	Sebastes jordani	606
18	Symbolophorus californiensis	598
19	Cyclothone signata	563
20	Nannobrachium ritteri	354
21	Trachurus symmetricus	352
22	Idiacanthus antrostomus	308
23	Nannobrachium spp.	247
24	Genyonemus lineatus	162
25	Chauliodus macouni	146
26	Danaphos oculatus	136
27	Tarletonbeania crenularis	135
27	Nansenia candida	135
29	Microstoma spp.	121
30	Tetragonurus cuvieri	116
31	Cyclothone spp.	103
32	Lestidiops ringens	102
33	Melamphaes lugubris	101
34	Microstomus pacificus	89
35	Myctophum nitidulum	87
36	Sternoptyx spp.	78 77
37	Argentina sialis	77
38	Sebastes diploproa	76 74
39	Tactostoma macropus	74
39	Lampadena urophaos	74
41	Coryphopterus nicholsii	67 58
42	Paralichthys californicus	58
43	Icichthys lockingtoni	55
44	Sebastes aurora	52
45	Scopelogadus bispinosus	48 45
46	Scomber japonicus	43
47	Argyropelecus sladeni	43
47	Sebastes paucispinis	43
47	Chiasmodon niger	43

TABLE 7. (cont.)		
	Taxon	Count
Rank		39
50	Gigantactis spp.	38
51	Lyopsetta exilis	35
52	Hypsoblennius jenkinsi	33
53	Vinciguerria poweriae	
54	Rosenblattichthys volucris	30
54	Oxyjulis californica	30
56	Leptocottus armatus	29
56	Cololabis saira	29
56	Notoscopelus resplendens	29
59	Ichthyococcus irregularis	27
59	Sphyraena argentea	27
61	Myctophidae	26
62	Benthalbella dentata	25
62	Bathylagus pacificus	25
64	Hygophum reinhardtii	24
65	Icelinus quadriseriatus	23
66	Argyropelecus affinis	22
66	Arctozenus risso	22
66	Aristostomias scintillans	22
69	Argyropelecus lychnus	20
70	Stomias atriventer	18
70	Chilara taylori	18
70	Cyclothone pseudopallida	18
70	Vinciguerria spp.	18
74	Pleuronichthys verticalis	17
75	Brama japonica	16
75	Bathophilus flemingi	16
75	Seriphus politus	16
78	Poromitra crassiceps	15
79	Nannobrachium regale	14
79	Lepidogobius lepidus	14
79	Cataetyx rubrirostris	14
79	Melamphaes parvus	14
79	Sebastes levis	14
79	Desmodema lorum	14
85	Parophrys vetulus	13
85	Electrona risso	13
85	Trachipterus altivelis	13
88	Oxylebius pictus	12
89	Citharichthys spp.	11
90	Symphurus atricaudus	10
90	Pleuronichthys ritteri	10
90	Argyropelecus hemigymnus	10
90	Notolychnus valdiviae	10
90	Neoclinus stephensae	10
90	Typhlogobius californiensis	10
90	Peprilus simillimus	10
90	Artedius lateralis	10
90	Paralabrax spp.	10
90	Girella nigricans	10
90	Odontopyxis trispinosa	10

TABLE 7. (cont.)			
Rank	Taxon		Count
101	Glyptocephalus zachirus		9
101	Liparis mucosus		9
101	Mugil cephalus		9
101	Scopelarchus guentheri		9
101	Scopelarchus analis		9
106	Howella spp.		8
106	Disintegrated fish larvae		8
108	Bathylagus milleri		5
108	Zaniolepis latipinnis		5
108	Melamphaidae		5
108	Loweina rara		5
112	Sebastolobus spp.		4
112	Lepidopsetta bilineata		4
112	Scopelosaurus spp.		4
112	Rathbunella spp.		4
112	Gibbonsia spp.		4
112	Synodus lucioceps		4
112	Melanostomiinae		4
112	Scorpaenichthys marmoratus		4
112	Melamphaes spp.		4
112	Sebastolobus alascanus		4
112	Argyropelecus spp.		4
112	Lampanyctus tenuiformes		4
112	Howella pammelas		4
112	Cyema atrum		4
112	Nannobrachium bristori		4
112	Atherinopsis californiensis		4
112	Oneirodes spp.		4
112	Nannobrachium hawaiiensis		4
112	Diogenichthys laternatus		4
		Total	66012

TABLE 8. Number of fish larvae taken in Bongo net tows at stations occupied on CalCOFI cruises in 2001. Counts are adjusted for percent of sample sorted and standard haul factor (see text). Unoccupied stations are indicated by a dash.

Station	-	Jan	Feh	Mar	Anr	May	Cyema atrum	t Inky	٧ ٧	S	7	;	ſ
		Jan.	1.60.	iviai.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0	0.0	0.0	ı	•	4.2		1	0.0	•	,	0.0	ı	ı
						S	rdinops sag	æ					
Station	_	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec
76.7 6	0.0	0.0	ı	ı	17.6		1	0.0) ,	٠,		0 0	
76.7	0.0	0.0	1		276.6		1	0.0		•	,	0.0	,
76.7 8	0.0	0.0	,	1	452.5		1	0.0	•	ı	,	0.0	
76.7	0.0	0.0	ı	1	33.2		1	0.0	•		,	0.0	٠
9 0.08	0.0	0.0	•	•	429.0		ı	0.0		,	,	0.0	,
80.0 7	0.0	0.0	•	•	325.1	•	1	0.0	1	•	,	0.0	
80.08	0.0	0.0	'n	•	469.7	,	1	0.0		,	,	0.0	ı
80.0	0.0	0.0	1	,	21.6		,	0.0	1		,	0.0	ı
80.0 10	0.00	0.0	•	1	16.8		1	0.0	ı	t	,	0.0	•
83.3 6	0.0	0.0	1	1	15.7		ı	0.0	ı	,		0.0	
83.3 7	0.0	0.0	•	ı	169.3	,	1	0.0		ı		0.0	ı
83.3 8	30.0	0.0	•		1177.9	,	ı	0.0	,		,	0.0	1
83.3 9	0.0	0.0		,	14.3		1	0.0	1	,	,	0.0	•
83.3 1(0.00	0.0	1	•	948.5	,	ı	0.0		,		0:0	
86.7 5	5.0	0.0	1		19.7		•	0.0	,	ı	,	0.0	
86.7 6	0.0	0.0	•	,	6.6			0.0	ı	,	•	0.0	1
86.7 7	0.0		•	ı	1357.0	,	ı	0.0	ı	,	,	0:0	
86.7 8	30.0	0.0	•	ı	1274.4	,	•	0.0		,	•	0.0	
86.7 9	0.0	0.0	,	,	605.8		ı	0.0	•		1	0.0	
9 0.06	0.0	0.0	•	,	121.3		1	0.0	,	1	0 0) ;	
90.0	0.0	0.0	•	ı	2222.7		1	0.0		ı	0.0		
90.0	0.0	0.0		ı	818.0	,	1	0.0	ı	,	0:0	1 1	
93.3 3	15.0	0.0	١.	1	18.1	,	•	0.0	1	,	0:0		•
93.3 4	0.0	0.0		j	1762.0	,	ı	0.0	,	ı	0:0		,
93.3 4	15.0	0.0	1	ı	126.0		1	0.0	1	,	0:0		
93.3 5	0.0	0.0	,	1	13.5	1	,	0.0		,	0:0		
93.3 5	5.0		ı	ı	425.7	,	,	0.0		,	0.0	•	
93.3 60.0	0.0	ı	•	1	49.9		,	0.0	ı		0.0		1

TABLE 8. (cont.)	(cont.)							(1)					
0	c	Jan.	Feb.	Mar.	Apr.	Sarat. May	Saramops sagax (con.) May June July	(cont.) July	Aug.	Sep.	Oct.	Nov.	Dec
93.3	80.0	0.0	1	•	465.3		,	0.0	•		0.0	•	1
						En	graulis mor	dax					
Statio	u	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec
76.7	49.0	18.4		•	0.0	1	1	0.0	• •	٠,	1	58.4	•
76.7	51.0	0.0	•		0.0	1	ı	0.0	,	,	1	73.2	•
7.97	55.0	15.4	. •	•	0.0	1	ı	33.3				0.0	1
80.0	51.0	77.6	1		0.0	,	,	5.0	,		•	952.4	•
80.0	55.0	20.7	•		0.0	1	,	9.0				2500.0	•
80.0	0.09	10.7	1		9.1	ı	•	0.0	•	•	,	8.99	•
81.8	46.9	0.0	•	ı	0.0		1	22.2	1		,	432.2	ı
83.3	40.6	50.3	•	1	0.0	1	ı	21.1	ı	ı	ı	10.1	•
83.3	42.0	84.5	:	1	0.0	٠	1	9.99			•	40.6	•
83.3	51.0	13.3	•	•	143.2		,	35.1	•			18.1	•
83.3	55.0	0.0	1	ı	8.7	•	,	38.4	•	,		8.7	•
83.3	0.09	0.0	ı	•	0.0	,	ı	115.1	,	,	•	0.0	•
86.7	33.0	54.7	•	•	88.3	ı	t	0.0	•	•	55.7	t	•
3 86.7	35.0	61.0		•	88.7		ı	17.6	1	•	4.5	1	•
86.7	40.0	0.0	•	•	144.2	•	•	5.2	ı	,	10.1	,	1
86.7	45.0	0.0	•	1	6.7.9	ı	,	134.6		,	0.0	ı	ı
86.7	50.0	0.0	•	1	23.7	•		86.0		,	1	0.0	•
86.7	55.0	0.0	,	1	0.0	•	r	0.0	•	ı	1	9.5	•
86.7	0.09	0.0	•	1	0.0	•	•	19.6	•	1	1	0.0	'
86.7	70.0		•	1	0.0	u	ı	48.1		ı	i	0.0	1
0.06	28.0	9.1		t	365.9	,	1	72.1	1	1	8.2	ı	1
0.06	30.0	21.0	1	•	1155.5	ı	1	176.2	ı	ı	0.0	1	1
0.06	35.0	0.0	Ī	t	498.6			7.6	1	1	569.0	ı	1
0.06	37.0	0.0	,	1	39.5		ı	161.3	•	1	43.6	•	ı
0.06	45.0	0.0	•	•	19.2	•	•	0.0	•		0.0	1	•
0.06	53.0	0.0		ı	17.8	1	ı	0.0	•	•	0.0	1	1
0.06	0.09	0.0		1	28.0		1	0.0	•	,	0.0	•	•
0.06	70.0	0.0		•	9.3	1	1	0.0		ı	0.0	,	•
93.3	26.7	4.8	1	ı	73.2	1	1	150.8	,	ı	7.4	•	•
93.3 28	28.0	0.0	,		274.7	•	ı	350.9		•	0.0		1
93.3	30.0	0.0		•	131.0		1	123.8	ı	,	41.4	t	'
93.3	35.0	6.6	1	1	506.5		•	106.2	ı	•	18.1	,	,

Station 93.3 40.0 93.3 45.0					TINSI I	sus moraux	(cont.)		(í
93.3 40.0 93.3 45.0	Jan.	Feb.	Mar.	Mar. Apr. May June July	May	June	July		Sep.	Oct	Nov	رمر
93.3 45.0	5.1	•	,	10.0			0.0		i.,	00		;
003 2 60 0	5.0		•	112.5	,		0.0		,	0.0	,	
93.3 30.0	5.9	,		4.5	,		10.0		•	9.0	ı	
93.3 60.0	,		•	0.0	,		9.6		,	2:0		
					A	gentina sia	is.			5		ı
Station	Jan.	Feb.	Mar.	Apr.	May	June	July		Sen	Oct	Non	کور
76.7 55.0	5.1	,	ı	0.0	٠,		0.0		: } '	;	. 0	
80.0 55.0	20.7		ı	0.0		ı	0.0		•		0.0	ı
80.0 70.0	0.6	,	ı	0.0	ı	ı	0.0		,		0.0	
81.8 46.9	8.9	•	,	0.0			0.0		ı		9.0	1
83.3 42.0	0.0	•		0.0			9.5		,		0.0	ı
83.3 51.0	4.4	1	1	0.0	1	•	0.0		,		0:0	ı
86.7 35.0	5.1	1		0.0	,		0.0		,	. 0	0.	
90.0 28.0	0.0	•		10.2	•	1	0.0			0:0	t 1	'
90.0 37.0	0.0	•	,	0.0		•	4.4		,	0.0		
					Mi	crostoma sp	ö.) •		
Station	Jan.	Feb.	Mar.	Apr.	May	June	July		Sep.	Oct.	Nov.	Dec
76.7 80.0	0.0	,	ı	9.2		•	0.0		٠,	,	0.0	
83.3 70.0	8.01	,	ı	0.0		,	0.0		•		0.0	,
83.3 80.0	0.0	,	•	0.0	,	•	8.4		•	•	0.0	,
83.3 100.0	0.0	•	ı	0.0			4.4			•	0.0	,
83.3 110.0	0.0	,	•	0.0	•		5.2		•	•	8.6	,
86.7 55.0	0.0		ı	6.6		•	0.0		ł	1	0.0	,
86.7 60.0	0.0	ı	•	0.0	,	1	0.0		1	ı	0.6	,
86.7 80.0	4.5	•	1	0.0	,	ı	0.0		,	1	0.0	,
0.09 0.06	0.0	ı	1	9.3	•	,	0.0		•	0.0	,	
90.0 70.0	0.0			0.0	,	1	4.3		ı	0.0	•	,
0.08 0.06	0.0	ı	,	0.0	ı	t	0.0		ì	4.2	•	1
93.3 80.0	0.0	ı	•	0.0		•	9.5			0.0	1	,
93.3 90.0	0.0	,	•	0.0	1	ı	0.0		,	8.8	,	,
93.3 100.0	0.0	•	•	0.0	•	,	5.1			4.4	1	,
93.3 110.0	0.0	•	ı	0.0	•	•	4.2		1	0.0	ı	,
93.3 120.0	0.0	1	•		1	ı	4.4		,	0.0	ı	
ć		ţ	,		Nai	ısenia candı	qa					
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
/6./ 80.0	0.0	,	•	9.2	ı	ı	0.0	,	•	ı	0.0	•

TABLE 8. (cont.)	(cont.)					Nansei	nia candida	(cont.)					
Station	u	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0	70.0	0.0	ı	į	10.2	1	ı	0.0	1	1	1	0.0	,
83.3	80.0	0.0	•	ı	6.6	1	į	0.0		•	ı	0.0	,
83.3	100.0	0.0	•	ı	29.6	•	1	4.4		1	1	0.0	ı
83.3	110.0	0.0	,	1	14.5	1	ı	0.0			,	0.0	
86.7	90.0	0.0	,	,	38.2	•	1	4.8	•	1	ı	0.0	
86.7	110.0	0.0	•	1	9.2	i	1	0.0	•	•		0.0	ı
93.3	0.09		•	,	4.5	ı	•	0.0	•	•	0.0	1	ı
						Bat	thylagus mil	leri					
Station	u	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
86.7	0.09	0.0	•	ı	4.9	•	•	0.0	1			0.0	1
						Bath	ylagus ocho	tensis					
Static	u(Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
7.97	49.0	4.6	•	,	0.0	•		0.0	1	,	ı	0.0	,
7.97	51.0	10.0	•	1	0.0	1	1	0.0				0.0	,
7.97	55.0	5.1	1	ı	0.0	1	ı	0.0	,		•	0.0	ı
7.97	0.09	6.7	ı	1	8.8	,	1	0.0	1	ı	r	0.0	•
7.97	70.0	9.6		1	6.6		1	0.0		,	ı	0.0	•
7.97	80.0	0.0	•	ı	9.5	1	ı	0.0		ı	,	0.0	
7.97	0.06	0.0	ı	1	24.9	,	•	0.0	•	ı	ı	0.0	1
80.0	0.09	21.5		1	36.5	ì	•	0.0	•		1	0.0	1
80.0	70.0	54.1		1	10.2		1	0.0	ı	•	1	0.0	
80.0	0.06	0.0	•	ı	28.8	•	ı	0.0	•	1		0.0	ı
80.0	100.0	0.0	ı	•	29.4	,	,	0.0	,	•		0.0	t
81.8	46.9	0.0	r	1	9.6	,	ı	0.0			ı	0.0	ı
83.3	0.09	0.0		•	7.9	ı	ı	0.0		•	1	0.0	•
83.3	70.0	0.0	•	•	10.0	1	ı	0.0		,		0.0	1
83.3	0.06	0.0	•	ı	14.3		ı	0.0			1	0.0	•
83.3	100.0	0.0	,	1	19.8		1	4.4			,	0.0	1
86.7	35.0	5.1	•	1	0.0		1	0.0	•	1	0.0	1	•
86.7	40.0	0.0	•	,	10.3	•	ı	0.0	•		0.0	,	,
86.7	55.0	0.0		1	0.69		ı	0.0	•	•	•	0.0	1
86.7	0.09	0.0		ı	4.9	•	1	0.0	•	•	•	0.0	,
86.7	70.0			1	19.4		ı	0.0	•	•	1	0.0	t
86.7 80.0	80.0	0.0	1		49.0	,	,	0.0	•	•		0.0	ı
86.7	0.06	0.0		ı	4.8	1	0.0	0.0	,	•	•	0.0	1

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نـــــــــــــــــــــــــــــــــــــ
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B
⋖

	Ž	Dec.			,	•	•	•	,			ı		,				•			,			Dec			. :	1	Dec	;	ı	•	ı			1	,	,	1
	Morr	IVOV.	1	ı		ı	,	•	,	,	1		r	ı		ı		ı	ı	•	,	,		Nov.	0.0	0.0	0.0	?	Nov	0.0	2	, , ,	7.77	124.5	124.4	,	0.0	296.7	30.7
	ţ		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0:0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		Oct.		,	,		Oct		1	,	ı	,	. ;	0.0	ŀ	1	ı
	N-N	C.	1		,		,		,	,	,	,	,		•	ı	,	1		•		,		Sep.	٠,	•			Sep.	٠.	ı	1	ı	1		,	•	1	
	Ang	, m.		•	•	ı			,	•	1	,	•	•	! !	ı	ı	,	ı	1		,		Aug.		,			Aug.	,	,			1	ı				•
sis (cont.)	July	0.0	0.0	0.0	2.0	2.0	10.8	0.0	0.0	4.1	11.6	0.0	0.0	0.0	0.0	0:0	0.0	9.0	0.6	0.0	0.0	0.0	ficus	July	0.0	0.0	0.0	ethi	July	0.0	0.0	0.0	13.0	13.2		0.0	0.0	0.0	24.1
us ochoten	June	ı	1	1		ı	t		,	ı	1	ı	ı		,	,	•		ı		•		ylagus paci	June		ı		hylagus wes	June	•	ı	,	,			•	1	•	
Bathylag	May	` '	ı	,	;	ı		•	ı	,	ı	ı		•	,	,	,	,		ı	ı	•	Bath	May	•	,	•	Bati	May			ı	,	,	1		:	ı	
													9.4																										
	Mar.	,	ı	1	•	,		•	•	,	•	,		•		,	,	•	ı	,	ı	1		Mar.		,			Mar.		,	•	,	,	•	,	' !	ı	
	Feb.	1	ı	,		,			•		,		,		,	ı	,	ı	,	,		ı	1,0	reo.		ı		,	Feb.			1	•	,	1	,	,		ı
	Jan.	10.9	10.3	5.0	0.0	0.0	0 0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	•		0.0	0.0	7.7	ř	Lon	Jali.	y. c	0.0	0.0		Jan.	0.0	0.0	0.0	0.0	0.0	5.1	4.6	4.5		2.
	Station	90.0 35.0	90.0 37.0	90.0 45.0	90.0 53.0	0.09 0.06	90.0 70.0	90.0	000 000	02.3 26.7	93.3 20.7	95.3 28.0	93.3 30.0	93.3 35.0	93.3 40.0	93.3 45.0	93.3 55.0	93.3 60.0	93.3 70.0	93.3 80.0	93.3 100.0	0.001	Station	76.7 00.0	0.7 90.0	0.00 6.70	86.7 80.0	04-45	Station	76.7 30.0	/0./ 100.0	83.3 90.0	83.3 100.0	83.3 110.0	86.7 45.0	86.7 55.0	86.7 80.0	0 00 6 2 98	200

TA	TABLE 8. (cont.)	(cont.)					Bathyla	igus weseth	i (cont.)					
	Static	Station	Jan.	Feb.	Mar.	Apr.	May	May June July	July	Aug.	Sep.	Oct.	Nov.	Dec.
	86.7	100.0	0.0	•	ı	27.8	1	•	21.6	•	,	,	17.6	1
	86.7	110.0	0.0	•	1	32.3	ı	1	124.2	•		•	8.65	•
	0.06	30.0	0.0		1	10.1	,	•	0.0		•	0.0	ı	•
	0.06	53.0	0.0		ı	0.0		1	8.2	•	•	0.0		•
	0.06	0.09	0.0	•	1	0.0			10.8	•	•	0.0	•	•
	0.06	70.0	0.0	1	•	0.0	1	,	115.0	ı	ı	0.6	•	ı
	0.06	80.0	0.0	,	1	0.0		•	147.2	1	•	0.0	1	ı
	0.06	0.06	0.0		•	32.9		1	24.5	•	i	26.8		1
	0.06	100.0	0.0	•		8.4	•	•	8.2	,	1	28.7	•	•
	0.06	110.0	0.0		1	42.2		1	10.6	•		37.5	,	•
	0.06	120.0	0.0		ı	13.1	1	•	15.5	•	,	13.1	,	,
	93.3	40.0	0.0		,	5.0	1	•	0.0	,	1	0.0	•	1
	93.3	45.0	0.0	,	ı	0.0	•	•	0.0	,		21.2		r
	93.3	0.09	1		ı	4.5		•	0.0	•	•	0.0	•	1
	93.3	70.0	0.0	ı		4.5	ı		151.0	•	,	0.0	1	1
	93.3	80.0	0.0	1	ı	0.0		1	184.5	,	,	9.4	,	•
66	93.3	0.06	0.0	•	•	9.5	ı	1	37.9		*	13.3	ı	
	93.3	100.0	0.0	1	1	0.0			137.7	•	t	22.2	•	•
	93.3	110.0	0.0	•	•	14.2		ı	4.2	ı	ı	31.1		
	93.3	120.0	0.0		•			•	22.2	1	1	35.4	•	,
							Lem	roglossus sti	ilbius					
	Statio	uo	Jan.	Feb.	Mar.	Apr.	May	June	July	Ang.	Sep.	Oct.	Nov.	Dec.
	76.7	49.0	9.5	,	ı	0.0	•	ι	0.0			ı	0.0	ı
	76.7	51.0	620.0	•	ı	6.7	,	1	0.0	1	1	ĺ	0.0	ı
	76.7	55.0	112.6	•	1	6.7	ŧ	t	0.0				0.0	1
	76.7 60.0	0.09	43.5	1	ı	35.1		1	10.2	ı			0.0	1
	76.7	70.0	105.5	1	ı	0.0	1	1	0.0			,	0.0	,
	76.7	80.0	0.0		1	18.5	1	ī	0.0	ı	•	ı	0.0	,
	76.7	0.06	4.9		1	8.3	1		0.0		,	,	0.0	,
	80.0	51.0	0.0	,	1	0.0	•		0.0			,	9.8	1
	80.0	55.0	72.5	,	•	9.6	1	ı	0.0	,		1	40.0	ı
	80.0	0.09	21.5	•	ı	9.1	,	,	10.3		ı	•	8.4	•
	80.0	70.0	135.2	•	ı	0.0	ı	•	0.0	ı		i	0.0	ı
	80.0	80.0	0.0		ı	8.9	1	•	0.0	Ţ	ı		0.0	1
	80.0	90.0	0.0	1	•	14.4			0.0		,	•	0.0	1

TABLE 8. (cont.)	cont.)					Louised	Att.	(22.11)					
Station		Jan.	Feb.	Mar.	Apr.	Leurogi May	Mar. Apr. May June July	s (cont.) July	Aug.	Sen	Oct	N	Dec
81.8 4		5.7		•	38.5	` '		0.0		; }	; ,	117.1	
83.3 4		0.	•		0.0	1		9.5	1	1	ı	0.0	
83.3 5		4.	,		0.0	ı	ı	0.0			,	0:0	
83.3 €		6.	1	ı	15.7	,	ı	0.0	ı			0.0	
83.3 7		4.		•	10.0	•		0.0	,	1	ı	0:0	, ,
83.3 8				1	0.0	ı	ı	0.0	•	•	,	0.0	ļ
83.3 5		0.	ı	ı	0.0	,		0.0		,		0.0	
83.3 1		0.		•	4.8		1	0.0	,	ı		0.0	
86.7 3		.5	,		19.7	•	ı	0.0	,	. 1	. 0	0.0	
86.7 4		9.0	,	1	20.6	,	1	5.2	,		10.1		
86.7 4	_	1.3	,	•	9.7	,	ı	0.0	,	•	100		1
86.7 \$		6.		1	15.8		1	0.0		ı	? '		ı
86.7 5		.2		1	0.0	1	ı	0.0		,	ı	0.0	
86.7 7				J	9.7	•	1	0.0	,	•		0.0	ı
86.7 8		.S.		•	9.61	ı	1	0.0		,		0.0	! !
90.0		0.		,	30.5	,	1	0.0	•	,	0 0	? '	
i 90.0 3		0.		ı	10.1	1	ı	0.0	,	,	0.0	:	
90.0		3.4			34.4	,	ı	0.0		,	0.0		
90.0		0.1		1	6.6	ı	ı	4.4	1	1	0.0	•	
90.0		0.0		,	28.8	1	•	0.0	,	•	0.0	1	,
90.0		0.		,	62.2	1		0.0	•	,	0.0	,	•
90.06		0:		ı	28.0	,	1	0.0			0.0	ı	
90.0		0.		•	51.2	•	,	4.3		3	0.0		
8 0.06		0.		•	4.6		•	0.0	,	•	0.0	1	,
90.06		0.			0.0	,	•	4.1	1	1	0.0	1	
93.3 2		0.		ı	35.4		ı	0.0	ı	1	0.0	ı	,
93.3 3		0.			9.4		,	0.0			0.0	•	,
93.3 4		0.			40.2		1	10.0	,	,	8.2	i	1
93.3 4		0.		•	45.0		4	0.0	1	•	10.6		
93.3 5		0.		1	13.5		,	0.0	ı	•	9.2	i	,
93.3 7		0.		,	18.0		ı	0.0	i	•	0.0	ı	•
93.3 8		0.		•	14.1	1	•	0.0	ı	,	0.0	1	
:1-70				;		ර ්	clothone sp						
Station		Jan.		Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3		o .		,	8.4		ı	0.0	•	•	ı	0.0	,

TAI	TABLE 8. (cont.)	<u></u>			Cyclothone spp. (c	Cyclot	hone spp. ((cont.)				
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Sep.	Oct.	Nov.	Dec.
	86.7 80.0				0.0			0.0			0.0	
	86.7 90.0				0.0			0.0		ı	4.4	ı
	86.7 100.0				4.6		•	0.0	1	1	0.0	,
	86.7 110.0				4.6	•	,	0.0	1		4.6	
	90.0 90.0	9.3		,	4.7	,	1	0.0	,	0.0		
	90.0 100.0				0.0			0.0	,	0.0		,
	90.0 110.0				4.2		,	0.0	•	0.0		
	90.0 120.0				8.7	,	,	7.8		17.5	,	
	93.3 80.0				0.0	ı	,	0.0		0.0	•	•
	93.3 110.0				0.0	•	•	0.0	•	4.4	1	1
						Cycloth	ione pseudo	pallida				
	Station		Feb.	Mar.	Apr.	May	June	July	Sep.	Oct.	Nov.	Dec.
	83.3 80.0				0.0	ı	ı	0.0	•	,	8.9	
	83.3 100.0				0.0			0.0			9.2	
						Cyc	lothone sign	ıata				
	.≃	•	Feb.		Apr.	May	June	July	Sep.	Oct.	Nov.	Dec.
68	80.0 100.0				0.0			0.0		ı	0.0	,
			,		0.0	ı	,	0.0	r	;	17.7	,
			•		0.0		,	0.0	•		4.6	•
					14.5	•		5.2	•	ı	34.3	,
					0.0		1	0.0		,	6.7	
					23.9			0.0		,	0.0	
	86.7 100.0	0.0	•	•	27.8			0.0	•		22.0	•
					46.1			8.3	,		0.0	
			,		9.1			4.3	•	0.0		•
					75.2	1		0.0		13.4	•	,
					4.2			12.3		14.4	ı	•
					29.5		•	10.6		8.3		1
			٠		17.4		,	15.5	,	0.0	•	
			•		0.0		,	0.0		8.2	,	
					0.0	•	,	4.7	,	0.0		,
					19.0			0.0		4.4	•	,
			٠		4.4	•		15.3	,	0.0	•	•
			,	1	14.2	1		12.7	•	4.4		
			•	•			,	13.3	ı	13.3	•	,

TABLE 8. (cont.)

	Dec.			Dec.		ı	ı	ı	ı	ı		Dec.				Dec.	ı	ı	ı	1		Dec		,		•	,		ı	Ž	Dec.	1	1	ı	1	,	,	•
	Nov.	•		Nov.	4 3		t t	r	ı		,	Nov.	0.0	1		Nov.	0.0	ı	ı	•		Nov	. 7	† <	4. د. د	0.4	ı			Non	. 60	0.0	0.0	0.0	9.8	0.0	4.4	4.6
	Oct.	4.5		Oct.	,	,	,	7. 0	0.0	0.0		Oct.	,	0.0	4	Oct.	ı	0.0	0.0	0.0	!	Oct	;	ı	t	, ;	7.7	7.4	ø.ø	,	 	ı	ı	ı	ı	1	,	ı
	Sep.	٠,		Sep.	•	ı	ı	ì	ţ	1	ō	sep.	1	ı	(Sep.	,	ı		ı		Sep			ł	ı	ı			S. C.			į	ı	ı		1	•
	Aug.	•		Aug.	1	ı	ı	ļ		•	¥ ¥	Aug.	ı		•	Ang.	,		•	,		Aug.	, ,	1	;	1 1	1			Ang			1	ı		1	ı	ı
spp.	July	0.0	ffinis	July	0.0	0.0	0.0	0.0	0:0	o.o	Symmus Tuler	Jury	0.0	0.0	1-1-	July	2.5	0.0	4.7	0.0	adeni	July	0.0	0.0	6.0	1.0	0.0	0:0	0.0	vlul	10.3	5.2		0.0	5.2	19.4	0.0	8.3
Argyropelecus spp.	June	•	ropelecus a	June	,		1	ı	1	molesno hom	Time) and	,	Aronononous Inc	True	anne		1	1	•	ropelecus sl	June	1	•	•				anhos ocul	June		ı	1	ı	ı		•	•
Arg	May		Argy	May	•	,	1	1	ı	Arovron	May	(mr.	,	4	Morr	1 V 1d y	ı	1			Argyi	May	,	,		,	,	,	Dan	May	, ,	•	1	İ	•	ı	•	
•	Apr.	0.0		Apr.	0.0	0.0	0.0	0.0	0.0	?	Anr		; <i>-</i>	È	Δnr	op.	0.0	0.0	0.0	4.8		Apr.	0.0	0.0	4.6	0.0	4.2	0.0	}	Apr.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
,	Mar.			Mar.	ı	ı	1	ı	ı		Mar				Mar		ı	ı		ı		Mar.	1	,	•	ı	,	•		Mar.	1	•	•	I		ı	1	ı
r E	reb.	ı	,	Feb.	ı	1	1	1	1		Feb.	ı	•		Feb	,		ı	,		,	Feb.	ı	1		•	•			Feb.	1	•	,			ı		1
	Jan.	0.0	,	Jan.	0.0	0.0	0.0	5.1	4.8		Jan.	0.0	0.0	}	Jan.	0.0	, ,	1.0	0.0	0.0	,	Jan.	0.0	0.0	0.0	0.0	0.0	0.0		Jan.	0.0	0.0	8.5	0.0	0:0	0.0	0.0	0.0
Ctotion	Station	90.0		\simeq					93.3 90.0		Station	86.7 110.0	90.0 70.0		Station	83.3 110.0			93.3 80.0	93.3 90.0		=		83.3 110.0	86.7 110.0	0.08 0.06	90.0 110.0			Ç		80.0 100.0						

TABLE 8. (cont.)	cont.)				Danaphos oculatus (c	Danaph	tos oculatus	(cont.)					
Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
		0.0		•	0.0			10.0	,		0.0		ı
		0.0			9.3	•	•	0.0	1	1	0.0	•	
		0.0	•		0.0	1		0.0			4.5	•	•
93.3 28	28.0	0.0	•		0.0	1	•	0.0	•	•	4.7	•	
		14.9	•		0.0	,	•	0.0	•	•	0.0	1	ı
		0.0	,		0.0		•	0.0		1	10.6	•	ı
		0.0			0.0	1		0.0		•	4.4	1	1
		0.0	•	•	ı	ı	ı	0.0	,	ı	4.4		
						S	ernoptyx sp	p.					
Station		Jan.	Feb.		Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 11	0	0.0	1		4.8		•	0.0	•	ı	1	0.0	1
86.7 11	0	0.0	•		9.2			4.1	,			0.0	
90.0	0	0.0	1		0.0			4.3	ı	,	0.0	,	
90.0	0	0.0	•		0.0	•	1	8.2	1		0.0	I	1
90.0	0	0.0	•		0.0	ı		14.1	•	•	0.0	1	1
0.06	0	0.0			13.1			3.9			0.0		•
93.3 10	0	0.0	•		0.0	•	,	5.1		•	0.0	1	1
93.3 11	0	0.0			0.0	1	1	4.2	ı	1	4.4	ı	1
93.3 120	0	0.0	t	,				4.4	t	,	0.0		•
						Ichthy	ococcus irre	gularis					
Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 9	0	0.0		ı	0.0			0.0	•		•	4.4	ŀ
90.0	0.	0.0	,	1	0.0	1	,	0.0	•		4.8		,
90.0	0.	0.0			0.0	ŀ	ı	0.0		ı	4.4	ı	1
93.3 4	0	0.0	•	ı	5.0	•	1	0.0		,	0.0	ı	1
93.3 8	0	0.0		1	0.0		1	4.7		•	0.0	,	,
93.3 11	0.	0.0	•	,	0.0	٠	1	0.0			4.4	,	•
						Z.	nciguerria s	pp.					
Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 100.0	0.00	8.8	1	ı	0.0	•	•	0.0	ı	•	0.0	1	,
93.3	10.0	4.3		ı	0.0		1	0.0	•	1	0.0	t	•
93.3 12	20.0	5.0	•	•		ı	•	0.0		1	0.0		•
						Vin	ciguerria lu	cetia					
Station		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0		0.0	•	ı	0.0		ı		,	1	t	4.3	i

nt.)
Ō
∞
BLE 8.

	Dec	;	;			, ,	;	ı	,	,	,	,	,	,	,	,	,	,	,	,	,	,	,	,	,			Dec.		,	,		•	•	1	Dec	
	Nov.	9.6	× 6	208.2	272.0	373.2	135.4	1.001	237.I	255.2	138.0		,		ı		,	1	,	,	,	1			,			Nov.	0.0	,	,	,		ı		Nov	
	Oct.	,	,	,	,	,	,			,		9.8	0.6	37.9	228.0	306.6	250.2	109.5	0.0	17.0	0.0	0.0	251.9	62.2	88.8	137.0		Oct.	,	0.0	0.0	0.0	0.0	0:0	2.0	Oct.	:
	Sep.	1	,	,	,	,	,		'				,		•			1	1	,	,		,	,	ı	,		Sep.	,		,	,	,	,		Sep.	٠,
	Aug.	1	,	1	•	1	,	•	•	ı		1				ı	,	1	ı	,	,				1	1		Aug.	1	,	1	,	,			Aug.	,
ia (cont.)	July	0.0	0.0	0.0	0.0	52.4	0.0	0.0	107.8	201.0	C.107	0.0	153.4	415.7	4.5.4	957.6	1408.0	2312.5	0.0	0.0	408.5	373.7	19.0	1167.9	481.1	1451.9	eriae	July	0.0	0.0	0.0	0.0	0.0	0.0	ouni	July	0.0
uerria lucet	May June July	ı		•	•				,	,	•	,			•			1	,		,	,	,		,		guerria pos	June	•		1		,		diodus mac	June	,
Vincig	May				,		•	,		•		ı			ı				,								Vinci	May			,	ı	,	,	Chan	May	,
	Apr.	0.0	0.0	0.0	0.0	0.0	0.0	9.5	0.0	4.6	0	0.0	0.0	14.1		0.0	5. 6	t c	0.0	4. c	0.0	0.0	0.0	8.8 2.0	73.0			Apr.	0.4	4.6	0.0	0.0	0.0			Apr.	9.7
	Mar.	,	ı		,	ı	ı	•	ı	,		1	,						1	,							;	Mar.							,	Mar.	
,	Feb.	ı	1					,		,		,	,		,	,		ı	ı	1			1 1			,	ti ti	ren.	,	,	;	ı	,	,		reb.	,
,	Jan.	9:0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	4.7	23.4	0.0	14.1	0.0	5 1	:	4.5	24.5	0.5	14.1	00	0.0	0.0	1) all.	0:0	0.0	, <u>_</u>	† ¢	J. 4	0.0		Jan,	0.0
	Station 80.0 70.0	833 700	93.2 70.0	83.3 50.0	92.2 110.0	0.011 5.50	00.7 00.0	00.7	86.7 100.0	86.7 110.0	0.09 0.06	90.0 70.0	90.0 80.0	90.0 90.0	90.0 100.0	90.0 110.0	90.0 120.0	93.3 40.0	93.3 60.0	93.3 70.0	93.3 80.0	93.3 90.0	93.3 100.0	93.3 110.0	93.3 120.0	0.021	Station	86.7 110.0	008 006	90.0	90.0 100.0	03.2 110.0	02.2 170.0	0.021 6.69	Chation	Station 76.7 51.0	0.10

Jan. 9.6	Feb.	Mar.	Apr. 9.2	May -	day June	July	Aug.	Sep.	Oct.	Nov.	Dec.
0.0	ı	•	0.0	•	ı	7.8		,	,	0.0	•
	ı		0.0	1		5.0	ı	•	,		•
0.0	•	ı	0.0		ı	10.3	•	ı	•	0.0	,
	ı		0.0	•	1	0.0	ı	,	,	0.0	t
5.0	•	1	4.8	1	1	0.0	•	1	r	0.0	•
5.0		,	0.0	1		0.0	1	1	1	0.0	ı
0.0	1	•	4.8	ŧ	1	10.5	1	,	•	0.0	1
0.0 0.09	ı	•	4.9	,		0.0	,	1	•	0.0	,
	•	,	0.0	•	1	4.8	•			0.0	1
	•	1	0.0	•		4.4	ı	,	0.0	•	t
	•	•	9.6	ı	,	0.0	,	1	0.0		,
	1	ı	0.0	1	ı	8.2			0.0		•
0.0	1	ı	0.0	ı	•	0.0		,	8.4	•	•
	1	,	0.0		ı	9.6	•		0.0		•
0.0			ı		0.0	0.0	1	•	4.4	,	•
				Sto	mias atrive	nter					
Station Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	,	1	0.0		,	8.7	•		0.0	ı	ı
	•	1	0.0	ı	•	0.0			0.0	ı	,
4.9	•	i	0.0		•	0.0	,		0.0		ı
				Ŭ	elanostomii	nae					
Station Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
0.0	ı	1	0.0		•	4.1		•	ı	0.0	ı
				Bath	ophilus fle	mingi					
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
		ı	0.0	l	1	12.4	,		ı	0.0	1
90.0 110.0 0.0	•	ı	4.2	ı	,	0.0	•	•	0.0	•	1
				Tacte	ostoma mac	ropus					
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
		1	0.0	1	•	27.0	ı	ı		0.0	•
0.0		ì	0.0	ı		16.6	1	,	1	0.0	1
0.0 0.06	ı	ı	0.0	i		4.1	ı	ı	0.0	ı	,
						1 (

17/	TABLE 8. (cont.)	. (cont.)					Avieto	Avietoetomias saintillans	,					
	Station	m	Jan.	Feb.	Mar.	Apr.	May	June	July	Ang	Sen	Oct	Nov	Dec
	83.3	110.0	0.0	•	•	4.8	٠,		0.0	ò,		;	0.0	į ,
	86.7	100.0	0.0		ı	4.6	1	ı	0.0	:	,	,	0.0	,
	0.06	110.0	0.0	1	,	8.4	1	,	0.0	1	1	00	} '	
	93.3	70.0	4.5	,	1	0.0	,	•	0.0		•	0.0	1	1
							Idiaca	nthus antro	stomus					
		uc	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov	Dec
		0.06	0.6	•	ı	0.0	i	1	0.0) ,		; 1	0.0	;
	83.3	0.06	0.0	•	•	0.0	1	1	0.0			•	35.4	, ,
	83.3	100.0	0.0		•	0.0	•	,	0.0	•	,	,	46.1	
	83.3	110.0	0.0		ı	0.0	,		0.0	,	1	,	12.0	
	86.7	0.06	0.0		•	0.0	,	ı	0.0				4 4	ı ı
	86.7	100.0	4.3		•	0.0	1	•	0.0	•			22.0	1 1
	86.7	110.0	5.0	•	ı	0.0	•	•	0.0	,	,	ı	0.0	
	0.06	0.06	0.0	ı	•	0.0	,	•	0.0			0 %	? '	,
	0.06	100.0	4.4		ı	0.0		•	0.0			000		i 1
,	0.06	110.0	0.0			0.0	•		0.0	ı	,	75.1		
73	0.06	120.0	4.7	,	1	0.0	•		0.0	•		17.5	,	ı
	93.3	0.07	0.0	,	ı	0.0			4.4	,		0.0	,	
	93.3	100.0	0.0	ı	ı	0.0	1	,	20.4	,	,	0.0	1	ı
	93.3	110.0	0.0		ı	0.0		•	8.4	,	•	0.0	1	1
	93.3	120.0	0.0		ı	ı	1	•	0.0		•	26.5		,
							Bent	'halbella de	ntata					
	Static	uc	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov	Dec
	83.3	100.0	0.0	ı	1	4.9	ı	ı	0.0	,	٠,	,	0.0	;
	86.7	80.0	0.0		ı	8.6	ı	,	0.0	1	•	ı	0.0	ı
	93.3	40.0	0.0	t	•	5.0	ı	•	0.0	1		0.0		•
	93.3 100	100.0	0.0		1	0.0		1	5.1	ı	ı	0.0	ı	ı
	į		ı				Rosenb	lattichthys 1	volucris					
	Static	uc 	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	86.7	100.0	0.0	ı	•	0.0	1	ı	0.0	ı	1	1	4.4	•
	90.0	0.06	0.0		1	4.7	ı	1	0.0	,		0.0	•	•
	90.0	100.0	0.0	•	1	8.4	•	1	0.0	•		0.0	,	•
	90.0 120.0	120.0	0.0	•	,	0.0		•	0.0	,	•	4.4		1
	93.3	80.0	0.0	1	•	0.0		- 9.5	9.5	ı	r	0.0	1	1

Τ	TABLE 8. (cont.)	_				ζ							
	Station	Jan.	Feb.	Mar.	Apr.	ocop May	scopetarchus anatis y June Ju	<i>iatts</i> July	Aug.	Sep.	Oct.	Nov.	Dec.
	83.3 110.0	0.0			0.0	, ,	,	0.0	٠,	٠,	,	4.3	ı
	93.3 80.0	0.0	•	•	0.0	•	•	4.7	•	1	0.0	•	1
						Scope	Scopelarchus guentheri	ntheri					
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	93.3 70.0	0.0	•	ı	4.5	1	1	0.0	•		0.0	1	1
	93.3 90.0	0.0	,	ı	4.8		•	0.0	,	,	0.0		ı
						Scol	Scopelosaurus spp.	spp.					
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	86.7 110.0	0.0	٠	ı	0.0	•	ı	4.1		•	ı	0.0	1
						Syn	Synodus Incioceps	sdə					
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	80.0 51.0	0.0	•	ı	0.0	ı	•	0.0	•		ı	4.3	1
						A	ctozenus ris	088					
	_	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
		0.0	•	•	4.8		,	0.0	,			0.0	1
	0.08 0.06	0.0	•		0.0	•	•	4.3			0.0	ı	1
74		0.0	•	•	4.7	•	•	0.0	•	•	0.0	•	,
	90.0 110.0	0.0	•	,	4.2	•		0.0		•	0.0	•	1
		0.0	1		4.5	1	- 0	0.0	,	•	0.0	•	•
						Les	stidiops ring	ens					
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
		0.0	,	•	4.8	ı	ı	0.0	,	,	•	0.0	•
	83.3 100.0	0.0	•	•	0.0	1		0.0	,	,	ı	4.6	ı
		0.0	ı	1	0.0	ı	ı	4.8	ı		•	0.0	•
		0.0			0.0	ı		70.4		ı		0.0	•
		0.0	1	1	0.0	ı	ı		ı	•	0.0	1	,
		0.0	•	•	0.0	ı	ı		ì	ı	0.0	ı	•
	90.0 110.0	4.7		•	0.0	1	•		•	1	0.0	ı	1
		0.0	•	ı	0.0	,	1	0.0	•	ı	4.4	,	•
						Ä	Myctophida	e					
	Station	Jan.	Feb.	Mar.	Apr.	May	June	•	Aug.	Sep.	Oct.	Nov.	Dec.
		0.0		1	4.2	ı	•		,	•		0.0	٠
	0.09 0.06	0.0		ı	9.3	•	,	0.0	•	1	0.0		1
	90.0 100.0	4.4		1	0.0	1		0.0	•	ı	0.0	•	1
	90.0 110.0	9.4			0.0	i	•	0.0	•	•	0.0	ı	•

ipuosm	July	0.0	0.0	5.2	0.0	10.8	29.0	0.0	0.0	57.5	56.3	131.9	18.9	14.2	20.4	118.2	17.8		July	10.3	0.0	0.0	31.1	17.7	0.0	0.0	0.0	0.0	9.7	0.0	9.6	4.4	21.0	7.6	0.0	59.3
not sulouvos	May June July	•	4	ı	•	ı	1	,	ı		,	ı	ı	ı	r	1	,	Jiaphus spp	June	,	ı	•		•	•	ı		•			•	•	•		•	•
Corato	May	٠,	•	i	1	•		ı				ı	ı	ı	ı	1	1	7	May	•	,	•		•	,			ı	•		ı	,	1	•	,	1
	Apr.	0.0	0.0	24.2	4.8	4.6	4.6	0.0	23.5	4.2	25.3	0.0	0.0	0.0	4.4	0.0	1		Apr.	9.2	4.4	30.5	17.7	21.6	4.2	9.6	6.2	7.9	19.9	6.6	9.5	6.6	0.0	0.0	0.0	0.0
	Mar.	ı	,	ı		1	,	1	,	•	,	ı	•	•	1	,	,		Mar.	1	1	ı	1	1	1	1	1	į	ı	1	į	1	1	1	•	1
	Feb.	ı	ı	1	ı	1	•	•	,	•	٠	1	,	•	,	•	1		Feb.	ì	ì	,	1	1		ı	1	•	•	ř	1	•	ŧ	ı	1	ı
	Jan.	0.0	0.0	0.0	4.9	0.0	0.0	10.0	0.0	35.2	28.1	0.0	0.0	9.5	0.0	4.3	0.0		Jan.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
. (cont.)	ш	0.06	83.3 100.0	110.0	0.06	100.0	110.0	70.0	0.06	100.0	110.0	120.0	80.0	0.06	100.0	110.0	120.0		uc	80.0	100.0	70.0	80.0	0.06	100.0	46.9	40.6	0.09	70.0	80.0	90.0	100.0	110.0	35.0	55.0	100.0
TABLE 8. (cont.)	Static	83.3	83.3	83.3	86.7	86.7	86.7	90.0	0.06	0.06	90.0	0.06	93.3	93.3	93.3	93.3	93.3		Static	76.7	76.7	80.0	80.0	80.0	80.0	81.8	83.3	83.3	83.3	83.3	83.3	83.3	83.3	86.7 35.0	86.7	86.7
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756	,				•					ı		1 1					; 1	
. 1404.	0.0	ı	00	0.0	0.0	0.0	0.0	0.0	0:0	0:0	0.0	0.0	0.0	6.0	<u>}</u> .	9 5	0:0	
	•	ı	1	•	,	,	1	•	,	•			,	•	0.0	} '	1	
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ian,	ı	,	ı	,	,	ı					,		ı	,	,	,	•	
6 44.5	10.3	0.0	0.0	31.1	17.7	0.0	0.0	0.0	0.0	6.7	0.0	9.6	4.4	21.0	6.7	0.0	59.3	
•	,	,			•	•	,	•		•	•		•	٠	•	•	ı	
	•	ı		,	•					,	•	,		ı		1	1	
-	9.5	4.4	30.5	17.7	21.6	4.2	9.6	6.2	7.9	19,9	6.6	9.5	6.6	0.0	0.0	0.0	0.0	
	,	1	1	1	1	1	1		ı	ı		,	ı	1	1	•	1	
	1	1	1	,	,	•	ı	•			ı	1	•	ı	ı	1	ı	
,	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	80.0	100.0	70.0	80.0	0.06	100.0	46.9	40.6	0.09	70.0	80.0	0.06	100.0	110.0	35.0	55.0	100.0	

Mar. Apr. May - 0.0 - 8.9 - 0.0 - 0					Dia	Diaphus spp. (cont.)	ont.)					
1822		Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
8.9 - 49.4 - 600 -			1	0.0	ı	1	182.2	ı	•	•	0.0	1
- 0.0 21.6 8.6		١	•	8.9	ı		49.4	ı	•	0.0	1	,
 0.0 - 4.3 - 6.0 0.0 - 4.1 0.0 - 4.1 0.0 - 7.0 0.0 - 7.0 0.0 - 7.0 0.0 - 9.6 0.0 - 9.6 0.0 - 10.2 0.0 - 10.2 0.0 - 4.4 0.0 - 6.0 0.0 - 7.0 0.0 - 10.2 0.0 - 4.4 0.0 - 4.2 0.0 - 4.4 0.0 - 4.2 0.0 - 4.4 0.0 - 4.2 0.0 - 4.4 0.0 - 4.4 0.0 - 6.0 0.0 - 7.0 <li< td=""><td></td><td>1</td><td>•</td><td>0.0</td><td>•</td><td>•</td><td>21.6</td><td>ı</td><td>•</td><td>9.8</td><td>ı</td><td>1</td></li<>		1	•	0.0	•	•	21.6	ı	•	9.8	ı	1
- 0.0 - 4.1 - 0.0			ı	0.0	•		4.3	,	•	0.0	ı	•
- 0.0 - 7.0 - 0.0		•	ı	0.0	•	1	4.1	,	•	0.0	1	•
- 0.0 - 14.4 - 0.0		•	1	0.0	ı	,	7.0	,	•	0.0	ı	•
- 0.0 - 4.4 0.0			1	0.0	ı		9.6	•	•	0.0	•	,
- 0.0 - 10.2 - 0.0 0.0 0.0 4.2 0.0 4.2 0.0 4.2 0.0 0.0 4.2 0.0 0.0 4.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 4.4 - 0.0 4.4 4.4 0.0 0.0 4.4 0.0 4.4 4.4 0.0 0.0 4.4 0.0 4.4 0.0 0.0 0.0 4.4 0.0		1	1	0.0	ŧ	ı	4.4	ı	•	0.0	ı	ı
- 0.0 - 4.2 - 0.0 - - - - - 0.0 - - 0.0 - - 0.0 - - 4.4 - 4.4 - 4.4 - 4.4 - 4.4 - 4.4 - 4.4 - 4.4 - 4.4 - 4.4 - 4.4 - 4.4 - 4.3 - 4.4 - 4.3 - 4.4 - 4.3 - 4.3 - 4.3 - 4.3 - 4.3 - 4.3 - 4.3 - 4.4 - 4.4 - 4.4 - - 4.4 - - 4.4 - - 4.4 - - 4.4 - - 4.4 - - 4.4 - - 0.0 - - 4.4 - - 4.4 - - 4.4		•	1	0.0	,		10.2	ı	1	0.0	ı	
Mar. Apr. May June July Aug. Sep. Oct. Nov. - 0.0 - - 4.4 - 0.0 - - 4.4 - 0.0 - - 4.3 - 0.0 - - 4.4 - - 0.0 - - 4.4 - 4.4 - - 0.0 - - 19.4 - - 4.4 - - 4.4 - - 4.4 - - 4.4 - - 4.4 - - 4.4 - - 4.4 - - - 4.4 - <		•	ı	0.0	•	•	4.2	•	ı	0.0		1
Mar. Apr. May June July Aug. Sep. Oct. Nov. - 0.0 - - 4.4 - 0.0 - - - 4.4 - 0.0 - - 0.0 - - 4.3 - 0.0 - - 0.0 - - 4.4 - - 4.4 - - 4.3 - 0.0 - - 19.4 - - 0.0 - - 4.4 - - 4.4 - - 4.4 - - 4.4 - - 4.4 - - 4.4 - - 4.4 - - 4.4 - - - 4.4 - - 4.4 - - - - - - - - - - - - - - - - -			•		1	ı	8.9			0.0	•	•
Feb. Mar. Apr. May Jume July Aug. Sep. Oct. Nov. - 0.00 - - 0.00 - - 4.4 - 0.00 - - 0.0 - - 4.3 - 0.00 - - 19.4 - 0.0 - - 4.4 - 4.4 - 4.4 - 4.4 - 4.4 - 4.4 - 4.4 - 4.4 - 4.4 - - 4.4 - - 4.4 - - 4.4 - - 4.4 - - 4.4 - - 4.4 - - 4.4 - - 4.4 - - 4.4 - - 4.4 - - 4.4 - - - 4.4 - - - 4.4 - - - - - -					Lam	vadena uro	sovia					
1.			Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
- 0.0 0.0 4.3 - 0.0 4.1 6.0 - 0.0 4.1 6.0 - 0.0 19.4 6.0 - 0.0 19.4 6.0 - 0.0 19.4 6.0 - 0.0 10.2 6.0 - 0.0 25.3 6.0 - 0.0 25.3 6.0 - 0.0 25.3 6.0 - 0.0 3.5 6.0 - 0.0 6.0 - 0.0 6.0 - 0.0 6.0 - 0.0 6.0 - 0.0 6.0 - 0.0 6.0 - 0.0 6.0 - 0.0 6.0 - 0.0 6.0 - 0.0 6.0 - 0.0 6.0 - 19.8 6.0 - 19.6 6.0 - 19.6 6.0		•	1	0.0	•	i	0.0	•	٠,	•	4.4	,
- 0.0 - 4.1 - 0.0		1	1	0.0	ı	ı	0.0	ı	ı	•	4.3	,
- 0.0		,	1	0.0	•	Ī	4.1	ı	ı	0.0	1	•
Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. - 10.2 - 25.3 - 0.0 - 4.4 - 0.0 - 25.3 - 0.0 - 6.0 - 6.0 - 10.2 - 0.0 - 6.0 - 6.0 - 25.3 - 0.0 - 6.0 - 6.0 - 3.5 - 0.0 - 6.0 - 3.5 - 0.0 - 6.0 9.2 - 0.0 - 6.0 - 8.3 - 0.0 - 6.0 - 9.1 - 0.0 - 6.0 - 10.2 - 0.0 - 6.0 - 9.2 - 0.0 - 6.0 - 10.2 -			,	0.0	•		3.5	,		0.0	ı	1
Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. 0.0				0.0	ı	1	19.4	1		0.0	,	1
Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. 0.0 - 3.5 - 0.0 - 0.0 Nannobrachium spp. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. - 9.2 - 0.0 - 0.0 - 0.0 - 10.2 - 0.0 - 0.0 - 0.0 - 10.2 - 0.0 - 0.0 - 0.0 - 10.2 - 0.0 - 0.0 - 10.2 - 0.0 - 0.0 - 10.2 - 0.0 - 0.0 - 10.2 - 0.0 - 0.0 - 10.2 - 0.0 - 0.0 - 10.2 - 0.0 - 0.0 - 10.2 - 0.0 - 0.0 - 10.2 - 0.0 - 0.0 - 10.2 - 0.0 - 0.0 - 10.8 - 0.0 - 0.0 - 10.8 - 0.0 - 0.0 - 10.8 - 0.0 - 0.0 - 0.0 - 0.0			,	0.0	ı	1	0.0	,	•	4.4	Ì	•
Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Feb. Mar. Apr. May June 0.0 - - 0.0 - - 9.1 - - 0.0 - - 0.0 - - 9.5 - - 0.0 - - 0.0			ı	0.0	1	ı	10.2			0.0	1	•
Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Feb. Mar. Apr. May June Feb. Mar. Apr. May June July Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Feb. Mar. Apr. May June July Feb. May June July Feb. May June July Aug. Sep. Oct. Nov. Feb. Mar. Apr. May June July Feb. May June July Feb. Province Feb. May June July Aug. Sep. Oct. Nov. Feb. Mar. Apr. May June July Feb. Feb. May June July Aug. Sep. Oct. Nov. Feb. Mar. Apr. May June July Feb. Feb. Feb. Feb. Feb. Feb. Feb. Feb.			ı	0.0		1	25.3	1	ı	0.0	•	1
Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Feb. Mar. Apr. May June Col. Nov. Oct. Nov. Feb. B.3 - - 0.0 - - - 0.0 - - - - 0.0 - - - 0.0 - - - - 0.0 - - - 0.0 <					Lamba	nyctus tenu	iformes					
Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. - 9.2 - 0.0 - 0.0 - 0.0 - 8.3 - 0.0 - 0.0 - 9.1 - 0.0 - 0.0 - 10.2 - 0.0 - 0.0 - 8.9 - 0.0 - 0.0 - 9.5 - 0.0 - 19.8 - 0.0 - 19.8 - 0.0 - 19.8 - 0.0 - 19.8 - 0.0 - 19.8 - 0.0 - 19.8 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0	•		Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. - 9.2 - - 0.0 - - 0.0 - - 9.1 - - 0.0 - - 0.0 - - 9.1 - - 0.0 - - 0.0 - - 9.1 - - 0.0 - - 0.0 - - 9.1 - - 0.0 - - 0.0 - - 9.1 - - 0.0 - - 0.0 - - 9.5 - - 0.0 - - 0.0 - - 9.5 - - 0.0 - - 0.0 - - 9.5 - - 0.0 - - 0.0 - - 9.7 - - 0.0 - - 0.0			1	0.0	1	•	3.5	1	ı	0.0	1	1
Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. - - - - - - 0.0 - - 0.0 - - - - - - - 0.0 - - 9.1 - - - 0.0 - - 10.2 - - 0.0 - - 0.0 - - - 0.0 - - - 0.0 - - - 0.0 - - - 0.0 - - - 0.0 - - - 0.0 - - - 0.0 - - - 0.0 - - - 0.0 - - - 0.0 - - - - 0.0 - - - 0.0 - - - - - - - - 0.0					Nan	nobrachiun	spp.					
- 9.2 - - 0.0 - - 0.0 - 8.3 - - 0.0 - - 0.0 - 9.1 - - 0.0 - - 0.0 - 10.2 - - 0.0 - - 0.0 - 8.9 - - 0.0 - - 0.0 - 9.5 - - 0.0 - - 0.0 - 19.8 - - 0.0 - - 0.0 - 19.6 - - 0.0 - - 0.0 - 19.6 - - 0.0 - - 0.0	•		Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
- 8.3 - - 0.0 - - 0.0 - 9.1 - - 0.0 - - 0.0 - - 10.2 - - 0.0 - - 0.0 - - 8.9 - - 0.0 - - 0.0 - 9.5 - - 0.0 - - 0.0 - 19.8 - - 0.0 - - 0.0 - 19.6 - - 0.0 - - 0.0			•	9.5	•	,	0.0	ı	ı	•	0.0	•
- 9.1 - - 0.0 - - 0.0 - - 10.2 - - 0.0 - - 0.0 - - 8.9 - - 0.0 - - 0.0 - 9.5 - - 0.0 - - 0.0 - 19.8 - - 0.0 - - 0.0 - 19.6 - - 0.0 - - 0.0			ı	8.3	1	1	0.0	•	•	•	0.0	,
10.2 0.0 0.0 8.9 0.0 0.0 9.5 0.0 0.0 19.8 0.0 0.0 19.8 0.0 0.0 19.6 0.0		•	,	9.1	1	ı	0.0	1	1		0.0	1
- 8.9 - - 0.0 - - 0.0 - 9.5 - - 0.0 - - 0.0 - 19.8 - - 0.0 - - 0.0 - 9.7 - 0.0 - - 0.0 - 19.6 - - 0.0 - - 0.0		t	t	10.2	ı	ı	0.0	,		1	0.0	,
9.5 0.0 0.0 19.8 0.0 0.0 9.7 0.0 0.0 19.6 0.0 0.0		ı	,	8.9	•	i	0.0	•	1		0.0	,
- 19.8 - 0.0		•	t	9.5	•	1	0.0	,			0.0	
		ı	,	19.8	ı	•	0.0		1	1	0.0	
0.0 0.0 0.0		ı	,	7.6	1	•	0.0	1	•	,	0.0	1
			1	19.6	•	•	0.0	r	,	•	0.0	

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	Š	Dec.	,		,	,	1	1		,		1	,	Į			4	Dec.			Dec.			Dec		ŧ		ć	Dec.		,	1	ı	1	,	,	•	,	•	
	Nov	. 00.	0.0	0.0	0.0	1	ı	•		,		,				,	M	INOV.			Nov.	,		No			•	Moss	1404.	0.0	0.0	0.0	0.6	5.1	8.7	0.0	0.0	7.7	0.0	
	Ç	100	ı		• (0.6	9.8	0.0	0.0	0.0	0.0	0.0	0.0	<u> </u>) -	t t	÷		0.0		Oct.	0.0		Oct	 80 80	00	2	+00	7				ı	•	,	,		,	101	10.1
	Sen	· ·		•	ı	,	,			1	,			,			Sen		1	ł	Sep.	1		Sep.	· ,	,		Sen	ch:	•	•	ı	ı	1		,		1 1		
	Aug.		,		ı		1	,	•	•		,					Ano	G	ı		Aug.	,		Aug.	ο,	,		Ano	0		ı	ı	ı	•	,	,	,	,	•	
D. (cont.)	July	0.0	00	0.0	0:0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ristori	July	0.0	2:0::0::0::	vanensis	July	4.1	regale	July	0.0	0.0	ritteri	July	00	0.0	0:0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0:0	>
rachium sp	May June July		,	,	1	ı	,			,			,			brachium l	June	ı	achium ba	Tues	June	,	obrachium	June			obrachium	June		,	,	ı	ı	ı	•	ı	,		,	
Nannob	May		,	,	,		1	ı	ı	,		,	,	,	,	Nanno	May	٠,	Namnoh	Morr	May	ı	Nanne	May	ı		Nann	May	٠,		ı			ı	,					
	Apr.	4.8	18.6	18.4	0.0	0.0	0.00	6.77	4. 0	8.4	4.2	4.4	4.5	0.0	0.0		Apr.	4.2		Δnr	. o o	0.0		Apr.	0.0	4.5		Apr.	0.0	8.9	0.0	0.0	0.0	0.0	0.0	6.6	39.5	2.6	0.0	
	Mar.	,	,	,	,	,	,	, ,	•				,	,			Mar.			Mar		ı	,	Mar.				Mar.	,		,	1				,				
	Feb.	1	ı			,	,	•		ı		•		•			Feb.	,		Feb		ı		reb.				Feb.			,	,		ı		,	ı		•	
	Jan.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5 5	. · ·	4./	. ;	8.6	4.8	,	Jan.	0.0		Jan.	0 0	2	_	Jan.	0.0		1	Jan.	10.0	14.3	5.1	0.0	00	0.0	2.0	0.0	0.0	0.0	11.5	
	.≅												93.3 60.0			÷	Station	90.0 100.0		Station	90.0 100.0		C+0+1	Station	86.7 45.0	93.3 60.0		Station	76.7 51.0	0.08 0.08	80.0 100.0	81.8 46.9	83 3 42 0	83.3 55.0	92.7	0.00 6.00	83.3 100.0	83.3 110.0	86.7 40.0	

TABLE 8. (cont.)					Nannobr	achium ritte	eri (cont.)					
0	Jan.	Feb.	Mar.	Apr.	May	May June July	July	Aug.	Sep.	Oct.	Nov.	Dec.
	0.0	•	ı	9.5	r		0.0	•	•	•	0.0	1
	0.0	•	,	4.6	1	ı	5.4		•		4.4	1
	0.0	•	ı	23.1	1	•	33.1	•		ı	0.0	ı
	0.0	•		0.0	•	•	17.0	•	•	0.0		1
	0.0	•	•	0.0	ı		4.3	•	ı	0.0	•	1
	0.0	•	,	0.0	,	•	4.1	ı		0.0	,	•
90.0 100.0	0.0	•	1	0.0		•	0.0	1	1	9.6	ı	٠
	0.0		ı	0.0	•		0.0	1	1	3.7		1
	0.0	•	1	4.7		,	0.0	t	ı	0.0	ı	1
	0.0	,		0.6	ı	•	0.0	ı	•	0.0	•	1
	0.0		ı	5.0	,		0.0	Ī	•	0.0	1	٠
	0.0		,	0.6		ı	0.0	Ī	1	0.0	1	,
	0.0			4.8	1	•	4.7		1	0.0	1	,
	0.0	ı	•	0.0		3	10.2	•	ı	8.9		•
	0.0	,	•	4.7		,	0.0			22.2	•	1
					Noto	lychnus vald	diviae					
Station Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
83.3 80.0	0.0	1	1	6'6	•	,	0.0	1	•		0.0	1
					Notosc	opelus respi	lendens					
Station		Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
90.0 110.0		,	ı	0.0	ı	,	3.5		1	0.0	ı	ı
90.0 120.0		•	•	4.4	Ī		3.9	,	,	0.0	,	1
93.3 110.0		•	•	0.0	,	•	8.4	1	•	0.0		1
93.3 120.0					1	1	8.9	:	•	0.0	•	ı
					Stenobr	achius leuc	opsarus					
Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
76.7 49.0	41.3		ı	11.9	ı	•	0.0	,		1	4.2	•
76.7 51.0	50.0	1	1	0.0	1		0.0		,	1	0.0	1
76.7 55.0	9.99		ı	0.0	1		0.0		ı	1	0.0	1
76.7 60.0	4.8		ı	61.5	ı	1	0.0		ı	ı	0.0	•
76.7 70.0	57.5	1		69.1	•	•	0.0	•	1	•	0.0	•
76.7 80.0	0.0	ı	1	27.7	1	ı	0.0	,		,	0.0	•
76.7 90.0	0.0	1	1	33.2	1		0.0	ı	•	•	0.0	ı
80.0 55.0	31.1	1	1	0.0	1	ı	0.0			1	0.0	1
80.0 60.0	43.0	,	•	73.0	ı	ı	0.0	ı		ı	0.0	i

Station Jan Feb. Mat. Apr. May June July Aug Sep. Oct. Nov. Dec. 80.0 70.0 2.7.0 1.0.0	TABLE 8. (cont.)	nt.)				Stenobrach	ins lencons	arus (cont.)					
27.0 0.0 <th>Station</th> <th></th> <th>Feb.</th> <th>Mar.</th> <th>Apr.</th> <th>May</th> <th>June</th> <th>July</th> <th>Aug.</th> <th>Sep.</th> <th>Oct.</th> <th>Nov</th> <th>Dec</th>	Station		Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov	Dec
9.6 - 0.0 - 0.0 26.8 - 0.0 - 0.0 26.8 - 0.0 - 0.0 7.7 - 0.0 - 0.0 8.3 - 0.0 - 0.0 8.5 - 0.0 - 0.0 8.5 - 0.0 - 0.0 0.0 - 0.0 - 0.0 0.0 - 0.0 - 0.0 0.0 - 0.0 - 0.0 0.0 - 0.0 - 0.0 0.0 - 0.0 - 0.0 0.0 - 0.0 - 0.0 0.0 - 0.0 - 0.0 0.0 - 0.0 - 0.0 0.0 - 0.0 - 0.0 0.0 - 0.0 - 0.0	80.0 70.			1	0.0			0.0) ,	٠,		0.0	
38.6 - 0.0 - 0.0 - 0.0 7.7 0.0 - 0.0 - 0.0 - 0.0 17.7 0.0 - 0.0 - 0.0 - 0.0 8.9 - 0.0 - 0.0 - 0.0 8.9 - 0.0 - 0.0 - 0.0 0.0 - 19.0 - 0.0 - 0.0 0.0 - 19.0 - 0.0 - 0.0 0.0 - 19.0 - 0.0 - 0.0 0.0 - 47.8 - 0.0 - 0.0 0.0 - 47.8 - 0.0 - 0.0 0.0 - 48.8 - 0.0 - 0.0 0.0 - 23.7 - 48 - 0.0 0.0 - 23.7	80.0 80.		•	ı	0.0	1		0.0				0.0	
26.8 0.0 <td>80.0 90.0</td> <td></td> <td>•</td> <td>•</td> <td>0.0</td> <td>1</td> <td>,</td> <td>0.0</td> <td>•</td> <td>,</td> <td>,</td> <td>0.0</td> <td>,</td>	80.0 90.0		•	•	0.0	1	,	0.0	•	,	,	0.0	,
7.7 0.0 0.0 0.0 0.0 17.3 0.0 0.0 0.0 0.0 8.5 0.0 0.0 0.0 0.0 8.5 49.5 0.0 0.0 0.0 9.0 74.1 0.0 0.0 0.0 10.0 14.5 0.0 0.0 0.0 10.0 14.8 0.0 0.0 0.0 10.0 29.6 0.0 0.0 0.0 10.0 23.7 4.8 0.0 0.0 10.0 23.7 4.8 0.0 0.0 10.0 23.7 4.8 0.0 0.0 10.0 23.7 4.8 0.0 0.0 10.0 20.7 0.0 0.0 0.0 10.0 20.7 0.0 0.0 0.0 10.0 10.2 0.0 0.0 0.0 10.0 10.0 0.0 0.0 0.0 10.0	81.8 46.		•	1	0.0	1	•	0.0	•	,	,	0.0	
173.2 0.0 0.0 0.0 0.0 8.9 0.0 0.0 0.0 0.0 8.5 49.5 0.0 0.0 0.0 0.0 19.0 0.0 0.0 0.0 0.0 14.4 0.0 0.0 0.0 0.0 47.8 0.0 0.0 0.0 0.0 47.8 0.0 0.0 0.0 0.0 57.9 0.0 0.0 0.0 0.0 57.9 0.0 0.0 0.0 0.0 57.9 0.0 0.0 0.0 0.0 57.9 0.0 0.0 0.0 0.0 57.9 0.0 0.0 0.0 0.0 5.7 0.0 0.0 0.0 0.0 5.7 0.0 0.0 0.0 0.0 5.7 0.0 0.0 0.0 0.0 5.7 0.0 0.0 0.0 0.0 0.0 <td>83.3 42.</td> <td></td> <td>,</td> <td></td> <td>0.0</td> <td>,</td> <td>•</td> <td>0.0</td> <td></td> <td></td> <td>,</td> <td>0.0</td> <td>,</td>	83.3 42.		,		0.0	,	•	0.0			,	0.0	,
8.9 - 0.0	83.3 51.	_	1	1	0.0	1		0.0	1		1	0.0	,
8.5 - 49.5 - 0.0	83.3 60.		,	ı	0.0	1		0.0	•	,	•	0:0	•
0.0	83.3 80.		•	ı	49.5	1	,	0.0			ı	0.0	1
0.0 - 74.1 - 0.0 - - 0.0 0.0 - 47.8 - 0.0 - - 0.0 0.0 - 29.6 - 0.0 - 0.0 - 0.0 0.0 - 23.7 - 0.0 -	83.3 90.		1	1	19.0	1		0.0	ı	1	1	0.0	
0.0 - 14.5 - 0.0 - 0.0 0.0 - 29.6 - 0.0 -	83.3 100		,	1	74.1	1	•	0.0	1		•	0:0	
0.0 - 47.8 - 0.0 - <t< td=""><td>83.3 110</td><td></td><td>1</td><td>1</td><td>14.5</td><td>ı</td><td>•</td><td>0.0</td><td>1</td><td>•</td><td>1</td><td>0.0</td><td>,</td></t<>	83.3 110		1	1	14.5	ı	•	0.0	1	•	1	0.0	,
0.0 - 29.6 - 0.0 - <t< td=""><td>86.7 33.</td><td></td><td>•</td><td>,</td><td>47.8</td><td>1</td><td></td><td>0.0</td><td>•</td><td>,</td><td>0 0</td><td>? '</td><td></td></t<>	86.7 33.		•	,	47.8	1		0.0	•	,	0 0	? '	
0.0 - 30.9 - 0.0 - 0.0 3.6 - 23.7 - 4.8 - - 0.0 - 9.9 - 0.0 - - 0.0 0.0 - 9.7 - 0.0 - 0.0 0.0 - 9.8 - 0.0 - 0.0 0.0 - 9.8 - 0.0 - 0.0 0.0 - 9.8 - 0.0 - 0.0 0.0 - 9.8 - 0.0 - 0.0 0.0 - 9.8 - 0.0 - 0.0 0.0 - 4.6 - 0.0 - 0.0 0.0 - 10.2 - 0.0 - 0.0 0.0 - 10.2 - 0.0 - 0.0 0.0 - 10.0 - 0.0 - 0.0 0.0 - 10.0 - 0.0 - <td>86.7 35.</td> <td></td> <td>•</td> <td>1</td> <td>29.6</td> <td>•</td> <td>•</td> <td>0.0</td> <td></td> <td></td> <td>0.0</td> <td>,</td> <td>•</td>	86.7 35.		•	1	29.6	•	•	0.0			0.0	,	•
3.6 - 67.9 - 0.0 - 0.0 3.6 - 23.7 - 4.8 - - 0.0 0.0 - 9.9 - 0.0 - - 0.0 0.0 - 9.7 - 0.0 - - 0.0 0.0 - 9.8 - - 0.0 - - 0.0 0.0 - 9.5 - 4.8 - - 0.0 0.0 - 9.5 - 4.8 - - 0.0 0.0 - 10.2 - 0.0 - 0.0 - 0.0 0.0 - 11.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0<	86.7 40.		•	ı	30.9	•	1	0.0	•		0.0	,	
3.6 - 23.7 - 4.8 - 0.0 0.0 - 9.9 - 0.0 - 0.0 0.0 - 9.7 - 0.0 - 0.0 0.0 - 9.8 - - 0.0 - 0.0 0.0 - 4.6 - 0.0 - 0.0 0.0 - 10.2 - 0.0 - 0.0 0.0 - 10.2 - 0.0 - 0.0 0.0 - 10.2 - 0.0 - 0.0 0.0 - 10.0 - 0.0 - 0.0 0.0 - 19.2 - 0.0 - 0.0 - 0.0 - 19.2 - 0.0 - 0.0 - 0.0 - 0.0 - 19.2 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 -	86.7 45.			,	6.7.9	ı	•	0.0		,	0.0		•
0.0 - 9.9 - 0.0 - 0.0 0.0 - 9.7 - 0.0 - 0.0 0.0 - 9.8 - 0.0 - 0.0 0.0 - 4.6 - 0.0 - 0.0 0.0 - 10.2 - 0.0 - 0.0 0.0 - 77.4 - 0.0 - 0.0 0.0 - 77.4 - 0.0 - 0.0 - 0.0 - 19.2 - 0.0 -	86.7 50.		1	ı	23.7	t	•	4.8	•	,	,	0.0	ı
- 9.7 - 0.0 - 0.0 0.0 - 9.8 - 0.0 - 0.0 0.0 - 4.8 - - 0.0 0.0 - 4.6 - 0.0 - 0.0 0.0 - 10.2 - 0.0 - 0.0 - 0.0 0.0 - 77.4 - 0.0 -	86.7 55.		,	ı	6.6	t		0.0	•		•	0.0	,
0.0 - 9.8 - - 0.0 0.0 - 4.6 - - 0.0 0.0 - - 4.6 - - 0.0 0.0 - - 0.0 - - 0.0 0.0 - - 77.4 - 0.0 - 0.0 20.5 - - 4.9 - - 0.0 - 0.0 0.0 - - 4.7 - 0.0 -	86.7 70.		•	ı	6.7	ı		0.0	•		ı	0.0	
0.0 - 9.5 - 4.8 - - 0.0 0.0 - 4.6 - 0.0 - - 0.0 0.0 - 10.2 - 0.0 - 0.0 - 0.0 - 77.4 - 0.0 - 0.0 - 0.0 20.5 - 4.9 - 0.0	86.7 80.			ı	8.6	ι		0.0	,	,	1	0.0	•
0.0 - 4.6 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0	86.7 90.		•	ı	9.5	,	ı	4.8			ı	0.0	,
0.0 - 10.2 - 0.0 - 0.0 0.0 - 77.4 - 0.0 - 0.0 20.5 - 4.9 - 0.0 - 0.0 20.5 - 4.9 - 0.0 - 0.0 0.0 - 19.2 - 0.0 - 0.0 0.0 - 18.7 - 0.0 - 0.0 0.0 - 4.7 - 0.0 - 0.0 0.0 - 4.7 - 0.0 - 0.0 0.0 - 4.7 - 0.0 - 0.0 0.0 - 4.7 - 0.0 - 0.0 0.0 - 4.7 - 0.0 - 0.0 0.0 - 4.7 - 0.0 - 0.0 0.0 - 4.7 - 0.0 - 0.0 0.0 - - 0.0 - 0.0 - </td <td>86.7 110</td> <td></td> <td>•</td> <td>1</td> <td>4.6</td> <td>•</td> <td>1</td> <td>0.0</td> <td></td> <td>,</td> <td>•</td> <td>0.0</td> <td>,</td>	86.7 110		•	1	4.6	•	1	0.0		,	•	0.0	,
0.0 - 77.4 - 0.0 - <t< td=""><td>90.0 28.</td><td></td><td></td><td>,</td><td>10.2</td><td>,</td><td>•</td><td>0.0</td><td>,</td><td>•</td><td>0.0</td><td>} '</td><td>•</td></t<>	90.0 28.			,	10.2	,	•	0.0	,	•	0.0	} '	•
0.0 - 77.4 - 0.0 - <t< td=""><td>90.0</td><td></td><td></td><td>ı</td><td>71.0</td><td>1</td><td>ı</td><td>0.0</td><td>1</td><td></td><td>0.0</td><td>•</td><td>ı</td></t<>	90.0			ı	71.0	1	ı	0.0	1		0.0	•	ı
20.5 - 4.9 - - 0.0 <t< td=""><td>90.0</td><td></td><td>•</td><td>ı</td><td>77.4</td><td>,</td><td></td><td>0.0</td><td>•</td><td>•</td><td>0.0</td><td>1</td><td>1</td></t<>	90.0		•	ı	77.4	,		0.0	•	•	0.0	1	1
0.0 - - 19.2 - - 0.0 - -	90.0 37.			•	4.9	1	•	0.0	ŧ	•	0.0	•	ı
0.0 - 35.5 - - 0.0 <t< td=""><td>90.0 45.</td><td></td><td>•</td><td>1</td><td>19.2</td><td>1</td><td>ı</td><td>0.0</td><td>1</td><td></td><td>0.0</td><td></td><td>ı</td></t<>	90.0 45.		•	1	19.2	1	ı	0.0	1		0.0		ı
0.0 - - 18.7 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - 0.0 - - 0.0 - - 0.0 - - 0.0 - 0.0 - <t< td=""><td>90.0 53.</td><td></td><td>•</td><td>ı</td><td>35.5</td><td>,</td><td>ı</td><td>0.0</td><td>•</td><td></td><td>0.0</td><td>1</td><td>,</td></t<>	90.0 53.		•	ı	35.5	,	ı	0.0	•		0.0	1	,
0.0 - 4.7 - 0.0 - <td< td=""><td>90.0</td><td></td><td></td><td>1</td><td>18.7</td><td>1</td><td>ı</td><td>0.0</td><td>1</td><td>•</td><td>0.0</td><td>,</td><td>,</td></td<>	90.0			1	18.7	1	ı	0.0	1	•	0.0	,	,
0.0 - - 9.1 - - 0.0 - - 0	90.0 70		•	•	4.7	1	•	0.0	,	•	0.0	,	
0.0 - - 4.7 - - 0.0 - - 0.0 - 0.0 - - 62.0 - - 0.0 - 0.0 - 0.0 - - 10.0 - - 0.0 - 0.0 - 0.0 - - 22.5 - 9.9 - 0.0 -	90.0 80		1	r	9.1	1	•	0.0	•		0.0		,
0.0 - - 62.0 - - 0.0 - - 0.0 - 0.0 - - 32.8 - - 0.0 - 0.0 - 0.0 - - 10.0 - - 0.0 - 0.0 - 0.0 - - 22.5 - - 9.9 - - 0.0 -	90.0		. •	1	4.7	1	1	0.0	,	,	0.0		
0.0 - 32.8 - 0.0 -	93.3 28.			ı	62.0	1		0.0	,	1	0.0	,	
0.0 10.0 0.0 0.0 -	93.3 30.		•	1	32.8	1	ŧ	0.0	1	•	0.0	ı	ı
0.0 - 22.5 9.9 - 0.0	93.3 40.		ı	1	10.0	ì	•	0.0	ı		0.0	:	
	93.3 45.			1	22.5	1	•	6.6		ı	0.0	1	

TABLE 8. (cont.)	nt.)				Stonobrack	tenohrachius Jeuconsarus (cont	arus (cont.)					
Station	•	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
93.3 50.	0.0 0	•	1	9.0			0.0) ,	٠,	0.0	1	1
93.3 55.			1	9.8			0.0		•	0.0	,	ı
93.3 60.		,	ı	4.5	ı	•	0.0		,	0.0	1	•
93.3 70.			•	4.5	į	ı	0.0			0.0		i
					Triph	oturus mexi	canus					
Station		Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
80.0 51.		,	ı	0.0	•	•	0.0) ,	٠,	ı	4.3	1
80.0 80.		ı	ı	17.7	,	ı	0.0	,	ı		0.0	•
83.3 55.		ı	•	0.0	•	•	9.6	,	ı	ı	0.0	•
83.3 80.0	0.0 0			6.6			0.0				0.0	•
83.3 110		1	•	0.0	•	•1	5.2	,		ı	0.0	1
86.7 33.		,	•	0.0	•	ı	0.0		1	5.1	•	,
86.7 40.		,	ı	0.0	,	ı	5.2	,		20.1		1
86.7 50.		ı	1	15.8	1	ı	0.0		ı		0.0	•
86.7 70.			ı	9.7	•	ŀ	0.0	٠	•	1	0.0	1
86.7 90.		•	1	9.5	•	•	0.0	ı	,	1	0.0	•
86.7 100		ı	ı	9.3		•	0.0	3	ı		4.4	•
86.7 110		ı	ı	0.0	•		12.4	•	•	•	0.0	ı
90.0 35.		1	1	0.0			0.0	,	t	18.1		1
90.0 37.		•	ı	0.0	ı	1	17.4		•	0.0	,	,
90.0 45.		1	1	0.0	ı	,	0.0	ı	ı	9.5		ı
90.0 70.		1	1	0.0	•	ı	42.6	•	1	0.0	•	•
90.0 80.		•	ı	0.0	•		21.7	•		0.0	,	,
90.0 90.		•	1	4.7			16.3		•	4.5	٠	٠
90.0 100		•	1	0.0			20.6	•	•	0.0	ı	1
90.0 110		•	•	0.0	ı	,	24.6			0.0	ı	ı
90.0 120		1	1	0.0		ı	58.2	,		0.0	ı	٠
93.3 30.		1	ı	0.0		ı	0.0	1		4.1	•	•
93.3 35.		1	1	18.1	,	ı	10.6	•	ı	0.0	•	•
93.3 40.		,	ı	0.0	•	1	0.0	ı	•	8.2	•	•
93.3 45.			1	0.0	•		0.0	,	ı	31.8	•	•
93.3 50.			1	0.0	•	r	10.0	1	•	0.0	ı	1
93.3 55.		1	ı	0.0	,	1	12.2	,	1	0.0		•
93.3 60.		1	1	0.0	,	1	9.6	ı	1	0.0	•	1
93.3 70.		1	,	0.0	ı	- 71.0	71.0	ı	,	0.0	ı	•

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	Dec		l !	1 1	1	١		Dec.	•	1	•	,	1		ı ı				1	1	i I	r	1	•	•			. 1				•		•		
	Nov	. 00	0.0 A A	992	0.0	× ×		Nov.	0.0	0.0	0.0	0.0	0.0	0 0	777	21.5	C:1.7	0 0	19.3	13.5	2.C1 A A	13.8	0.01	ì		, ,		•	,	1	•	,				r
	Oct	;	,	,		,		Oct.	•	•	,	ı	•	1	,	,	0	? '	,	,			0 0	0.0	0.0	2.5	38.3	12.5	30.7	00	0.0	0.0	0.0	0.0	26.5	4.4 4.4
	Sen	; } }	1		,			Sep.	٠,	ı	,	,		,	ı	,	•		,	,				,		ı	,	,		ı	•	1	,	1	,	•
	Ang	42.6	4.7	15.3	12.7	35.5		Aug.	1	1	ł	ı	,	,	1	,	,	ı	,	,	,		,	ı	,	,		,	1	ı	,	ı	•	ı	r	ı
us (cont.)	July	1	ı	1	•		nnticus	July	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	0.0	0.0	85	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.4
us mexican	June		•		,	ı	ichthys ath	June	ı	1	•	ı	,	,		,			ı	ı	•	•	,	•		,	,	1	,	1	,	•	,	•		- 20.4
Triphotur	May	0.0	4.8	0.0	4.7	,	Diogen	May	1	,	1	,	ı		,	1	,	'n	1	,	1		ı	,		ı		1		1		1	•			•
	Apr.	, ,	,	1	1	:		Apr.	0.0	0.0	0.0	10.0	6.6	0.0	0.0	0.0	0.0	0.0	0.0	9.5	13.9	55.3	0.0	0.0	0.0	0.0	21.0	4.2	17.4	9.0	4.5	9.1	0.0	0.0	33.3	4.4
	Mar.	ı	1	ı	1	•		Mar.	1	1	1	1	•	ı	1	,	•		t	ı	ı	ı	ı	,	ı	ı	r	ı		•	•	ı	•	,		ı
	Feb.	0.0	0.0	0.0	0.0	0.0		Feb.		1	•	•	1	1	,	•	•	r	1	1	•	•		•	ı	•	•	•							•	ı
	Jan.	80.0	0.06	100.0	110.0	120.0		Jan.	3.9	9.0	5.1	0.0	0.0	0.0	0.0	6.6	5.1	4.6	0.0	0.0	0.0	0.0	10.3	5.0	0.0	0.0	0.0	9.4	9.3	0.0	0.0	•	4.5	14.7	0.0	0.0
()	Station	93.3	93.3	93.3	93.3	93.3		Station	80.0 51.0	80.0 90.0	80.0 100.0	83.3 70.0	83.3 80.0	83.3 90.0	83.3 100.0	83.3 110.0	86.7 45.0	86.7 55.0	86.7 80.0	86.7 90.0	86.7 100.0	86.7 110.0	90.0 37.0	90.0 70.0	0.08 0.06	0.06 0.06	90.0 100.0	90.0 110.0	90.0 120.0	93.3 35.0	93.3 45.0	93.3 60.0	93.3 70.0	93.3 80.0	93.3 90.0	93.3 100.0

Η	TABLE 8. (cont.)	_				Diogenich	Diagonichthys atlanticus (cont	(cont					
	Station	Jan.	Feb.	Mar.	Apr.	May	May June July	July	Aug.	Sep.	Oct.	Nov.	Dec.
	93.3 110.0	0.0	ı	1	9.4	ı	1	12.7	•	ı	0.0	1	1
	93.3 120.0	6.6	1	1	,	ı	•	31.1		1	8.8	1	•
						Diogen	ichthys late	rnatus					
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	93.3 70.0	0.0	•	•	4.5		•	0.0	٠,	٠,	0.0	•	i
						E	lectrona riss	0					
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	83.3 110.0	4.9	•	1	0.0	1	ı	0.0	•	٠,	•	0.0	•
	90.0 100.0	0.0	1	ı	4.2		•	0.0	r	ı	0.0	•	1
	90.0 110.0	0.0	•	1	0.0	ı	,	0.0	1		4.2	•	,
						Hygo	phum reinha	ardtii					
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
		0.0	•	1	0.0	1	1	7.0		1	4.2	1	ı
	90.0 120.0	0.0	1	ı	0.0		,	3.9	,	,	0.0	•	1
		0.0		ı	0.0	•	1	9.5	•	•	0.0	,	
						7	oweina rara	_					
82	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	0.06 0.06	0.0		•	4.7	•	ı	0.0	,		0.0	•	1
						Mycta	phum nitid	ulum					
	.≘	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
		0.0		ı	0.0	1	1	0.0	,	,	•	8.6	•
		5.0	,	1	0.0	•		0.0	t	•		0.0	•
		4.9	•	ı	0.0	1		0.0		1	,	0.0	•
		0.0		ı	0.0		•	0.0	•	1		4.4	ı
		0.0		1	0.0	•	,	0.0	ı		•	8.8	•
	86.7 110.0	0.0		1	0.0	r	1	0.0		1		9.2	1
		0.0	,	ı	0.0	1	•	0.0	•	1	19.2	1	1
		0.0	•	ı	0.0	i	ı	0.0	1	1	4.2	ı	,
		0.0		1	0.0	ı	1	3.9	1	,	0.0	ι	1
		4.9	1	Ī	0.0	ı	ı	0.0	,		0.0	ı	ı
		0.0		1	0.0	ı	1	0.0			4.4	ı	•
		0.0	ı	,	4.7	1	•	0.0	,	,	0.0	•	1
	93.3 120.0	0.0	ı	1	ı	ı		0.0		,	4.4	ı	•

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TA	BLE 8.	TABLE 8. (cont.)					Protomyct	Protomyctonhum crockeri (cont	keri (cont.)					
	Static	Station	Jan.	Feb.	Mar.	Apr.	May	May June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	93.3	50.0	0.0		1	0.0					٠,	9.5	•	
	93.3	0.09	,	,	•	27.2	•	•			•	0.0	•	
	93.3	70.0	0.0		,	0.0	ı	,			,	0.0	ı	1
	93.3	0.08	4.9	,	,	4.7		ı		,	,	4.7	•	
	93.3	0.06	14.3		,	9.5		ı		,		17.7		,
	93.3	100.0	0.0		1	26.5						17.8	,	
	93.3	110.0	4.3		•	0.0	•	1	4.2		•	8.9		
	93.3	120.0	0.0	,		,				,		0.0	,	
							Symbolo	phorus calif	_					
	Static	uc	Jan.	Feb.	Mar.	Apr.	May	June		Aug.	Sep.	Oct.	Nov.	Dec.
	83.3	100.0	0.0		1	4.9	ı	,		,	ı	,	0.0	
	83.3	110.0	0.0	•	•	43.6		•		•		٠	0.0	
	86.7	86.7 90.0	0.0		•	23.9	•				,	,	4.4	
	86.7	100.0	0.0		,	18.6	,			,	•		4.4	
	86.7	110.0	5.0		,	13.8	ı			,			0.0	
	0.06	53.0	0.0		•	0.0	1	,			,	0.0	1	
01	0.06	0.09	0.0	,	•	0.0	1			,	,	0.0	,	,
	0.06	70.0	0.0		1	0.0	•			1		0.0	,	1
	90.0	80.0	4.7		1	0.0					1	0.0	,	,
	90.0	0.06	9.3	,	•	14.1	ı			,	,	8.9	ı	,
	0.06	100.0	0.0		,	0.0	,	ı		,		4.8	,	,
	0.06	110.0	14.1	,	1	25.3	,					0.0	1	,
	0.06	120.0	0.0			30.5	,					0.0	,	•
	93.3	40.0	0.0		,	2.0	,			,	•	0.0	•	,
	93.3	45.0	0.0	,	,	0.0	,					0.0	•	1
	93.3	0.09	1		ı	9.1	•			,	•	8.5	•	•
	93.3	80.0	4.9	,	1	9.4	,	•			•	0.0	ı	,
	93.3	90.0	0.0		,	14.3	,	,				0.0	ı	,
	93.3	100.0	9.4			4.4	•					0.0	,	
	93.3	110.0	0.0		1	4.7	,					0.0	,	,
	93.3	120.0	5.0		•		•					4.4	,	,
							Tarleto	mbeania cr	-					
	Station	uo	Jan.	Feb.	Mar.	Apr.	May	June		Aug.	Sep.	Oct.	Nov.	Dec.
	76.7	55.0	5.1		•	0.0				•	ı	,	0.0	,
	76.7	80.0	0.0	,		0.0				ı	1	ı	0.0	,

 Tarletonbeania crenularis (cont.)

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- - 0.0 Jan. 192.8 420.0 66.6 19.3 38.4 0.0 0.0 20.7 21.5 18.0 Jan. 0.0 0.0 0.0 TABLE 8. (cont.) Station 76.7 70.0 93.3 100.0 Station 83.3 100.0 86.7 110.0 90.0 70.0 Station
80.0 90.0
80.0 100.0
83.3 51.0
83.3 80.0
90.0 35.0
90.0 37.0
90.0 60.0
90.0 70.0
90.0 100.0
93.3 40.0 Station 76.7 49.0 76.7 51.0 76.7 55.0 76.7 60.0 76.7 70.0 76.7 90.0 80.0 51.0 80.0 60.0 80.0 60.0 80.0 60.0 80.0 60.0

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	Nov.	0.0	27.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		,	ì	0.0	0.0	0.0	0.0	0.0		•	ı	1	,			t	,		1	1		ı	1	,
	Oct.	,		1	,		•	ı	ı	•	0.0	0.0	0.0	,	1	,	1	ŀ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Sep.	•		1	1			,	1			1	1		1	•	,	1			•	•	,	•	ı	1	•			,		ı	1	ı
	Aug.	•	•	ı	ı				,		1	ı	1	ı	ı	,	•	1	1				ı			ı	ı		•	ı		1	ı	,
us (cont.)	July	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ius product	June	,	ı		1	,	•	1	ı		1	•			ı	ı				ı		1	1			•	1		•	•	•	ı	ı	- 0.0
Merlucc	May	,				1	•		ı	,		•	•	1	ı	t		,	•	,		ı	1	ı	•	,	1	•		,	•	1		•
	Apr.	79.8	19.2	9.4	0.0	8.7	7.9	159.4	14.3	39.5	0.0	10.3	6.7	0.0	19.7	29.6	19.4	137.2	20.3	10.1	0.0	6.6	26.6	28.0	14.0	9.1	8.9	27.1	10.0	4.5	4.5	8.89	86.3	4.5
	Mar.	•			1	•		,	•		,	ı	1	1	ı		ı		,		•	,	ı			,			ı			1		•
	Feb.		•	•	1	1				,	1	•		1	1	,	•	,	•	•		ı	1	,		•	,	:	1	ŀ	•	ı	,	
	Jan.	0.0	17.8	19.2	75.5	0.0	0.0	0.0	0.0	0.0	10.2	57.3	30.4	10.9	4.6	0.0	,	0.0	0.0	0.0	43.7	20.5	0.0	0.0	0.0	0.0	0.0	5.0	5.1	0.0	0.0	1	•	0.0
	Station	80.0 80.0	81.8 46.9	83.3 42.0	83.3 51.0	83.3 55.0	83.3 60.0	83.3 70.0	83.3 90.0	83.3 100.0	86.7 35.0	86.7 40.0	86.7 45.0	86.7 50.0 10	86.7 55.0	86.7 60.0	86.7 70.0	86.7 80.0	90.0 28.0	90.0 30.0	90.0 35.0	90.0 37.0	90.0 53.0	0.09 0.06	90.0 70.0	0.08 0.06	93.3 28.0	93.3 35.0	93.3 40.0	93.3 45.0	93.3 50.0	93.3 55.0	93.3 60.0	93.3 70.0

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	Dec.	,			Dec.	1	,		Dec.	1		Dec.	ı	•	ı	,	,	•		Dec.			Dec.		•	ı	,		Dec.	,		Dec.	,		Dec.	ı
	Nov.	0.6			Nov.	,	,		Nov.	•		Nov.	8.9	8.6	4.6	•	,	4		Nov.			Nov.	0.0	0.0		1		Nov.	0.0		Nov.	ı		Nov.	0.0
	Oct.	1	0.6		Oct.	0.0	0.0		Oct.	4.5		Oct.	•	,	,	8.3	0.0	4.4		Oct.	4.1		Oct.	1	•	0.0	0.0		Oct.	•		Oct.	4.4		Oct.	1
	Sep.	1	•		Sep.	٠,			Sep.	٠,		Sep.	•	1	•	ı	ı	1		Sep.	٠,		Sep.	۱ ۱	•	•	ì		Sep.	•		Sep.	1		Sep.	
	Aug.	,	,		Aug.	ı			Aug.			Aug.	1	•	•	ı	1	,		Aug.			Aug.	' '			•		Aug.			Aug.	1		Aug.	•
ri	July	0.0	0.0	ostris	July	0.0	0.0	D.	July	0.0	op.	July	0.0	0.0	0.0	0.0	3.9	0.0	rniensis	July	0.0	ra	July	10.4	0.0	0.0	0.0	ae	July			July	0.0	ubris	July	0.0
Zhilara taylori	June	ı		Cataetyx rubrirostris	June	ı	ı	neirodes sp	June	1	igantactis s _l	June	1	1	,	1	ı	0.0	opsis califo.	June	•	ololabis sai	June	ı	1	1	,	[elamphaid	June		Melamphaes spp.	June	į	Melamphaes lugubris	June	1
0	May	1	•	Cata	May	ı	ı	0	May			May	4	ı	•	ı	1	1	Atherin	May	1				1			Σ	>	ı		May	•	Mela	May	
	Apr.	0.0	0.0		Apr.	3.7	10.3		Apr.	0.0		Apr.	0.0	0.0	0.0	0.0	0.0	1		Apr.	0.0		Apr.	0.0	0.0	0.0	0.0		Apr.	0.0		Apr.	0.0		Apr.	19.9
	Mar.	ı	1		Mar.	ı			Mar.	t	,	Mar.	1	ı	1	t	ı	,		Mar.			Mar.	•					Mar.		,	Mar.	,	,	Mar.	ı
	Feb.	į	,		Feb.	ı	•		Feb.	•	,	Feb.		•		1	•	ı		Feb.	,		Feb.		•	ı		,	Feb.		-	Feb.		ţ	Feb.	ı
	Jan.	0.0	0.0	,	Jan.	0.0	0.0		Jan.	0.0		Jan.	0.0	0.0	0.0	0.0	0.0	0.0		Jan.	0.0	,	Jan.	0.0	3.4	10.9	4.8	1	Jan.	4.9	-	Jan.	0.0	F	Jan.	0.0
	Station	81.8 46.9	90.0 35.0	÷.	Station	86.7 33.0	86.7 40.0		Station	90.0	·.	Station	83.3 90.0	83.3 110.0	86.7 110.0	90.0 110.0	90.0 120.0	93.3 120.0	•	Station	90.0 28.0		Station	80.0 80.0	83.3 40.6	90.0 35.0	93.3 26.7	į	Station	/6./ 90.0	77.70	Station	93.3 90.0		Station 92 2 20 0	03.3 / 0.0

																														•						
	Nov.																																			
																														0.0						
																														•						
<i>ubris</i> (cont.	May June July	0.0	0.0	0.0	0.0	0.0	0.0	9.6	4.4	0.0	0.0	s parvus	July	0.0	0.0	rassiceps	July	5.2	0.0	0.0	bispinosus	July	5.3	8.8	4.1	4.3	0.0	9.5	4.2	4.4	s spp.	e July	0.0	0.0	0.0	
an phaes lug	June	•	•	•	•	•	•	ı	1	•	•	Melamphae	June	•	•	Poromitra c	June	•	•	1	opelogadus	June	•	•	•	•	•	•	•	•	Sebaste	/ June	•	•	•	
Mela																																				
																														•						
	Mar.	,	•	1	•	•	'	•	•	,	•		Mar.	•	٠		Mar.	•	•	•		Mar.	•		•	•	•	•	•	•		Mar	•	•	•	
	Feb.	•	•	•	•	•	٠		•	•	•		. Feb.		٠		. Feb.					. Feb.	•	•	•	•	,	•	•	,		ı. Feb.	2	- 0		. ,
nt.)	Jan.									0.0 0.0				0	0.6 0.			0	.0 5.4	0.				100.0 0.0								Jan.	0	0	0	
TABLE 8. (cont.)	Station									93.3 110.0			Station	80.0	80.0 90.0		Station	76.7 80	83.3 70.0	90.0		.=										Station	76.7 49	76.7 51.	76.7 55	100

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cont.
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9.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	36.5 10.2 0.0 4.2 0.0 0.0 105.0 195.6 143.0 195.6 180.5 180.5	
	* 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	36.5 10.2 0.0 4.2 0.0 0.0 105.0 34.8 94.4 25.8 143.0 195.6 48.5 63.1 39.4 9.9
		10.2 0.0 0.0 0.0 0.0 105.0 34.8 94.4 25.8 143.0 195.6 48.5 63.1 39.4 9.9
		0.0 4.2 0.0 0.0 105.0 34.8 94.4 25.8 143.0 195.6 48.5 63.1 39.4 9.9
		4.2 0.0 0.0 105.0 34.8 94.4 25.8 143.0 195.6 63.1 39.4 9.9 0.0
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.0 0.0 105.0 34.8 94.4 25.8 143.0 195.6 63.1 39.4 0.0
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.0 105.0 34.8 94.4 25.8 143.0 195.6 48.5 63.1 39.4 0.0
		105.0 34.8 94.4 25.8 143.0 195.6 48.5 63.1 39.4 0.0
		54.8 94.4 25.8 143.0 195.6 48.5 63.1 39.4 9.9 0.0
		94.4 25.8 143.0 195.6 48.5 63.1 39.4 9.9 0.0
		25.53 143.0 195.6 48.5 63.1 39.4 9.9 0.0
		195.6 48.5 63.1 39.4 9.9 0.0
	1 1 1 1 1 1 1	48.5 63.1 39.4 9.9 0.0 212.9
	1 1 1 1 1 1 1	63.1 39.4 9.9 0.0 212.9
0 0 0 0 0	1 1 1 1 1	39.4 9.9 0.0 212.9
0000	1 1 1 1	9.9 0.0 212.9
0.00	t 1 t 1	0.0 212.9
0.0	1 1 1	212.9
_	1 1	
		180.5
_		19.8
_	,	0.0
•		7.76
_	•	65.3
_		144.2
_		0.0
_	1	35.4
_	,	
_	•	271.3
0	Ì	35.1
•	•	9.0
_	1	8.86
9	1	6.86

TA	TABLE 8. (cont.)					Coh	o) uus sotsi	ont)					
	Station 93.3	Jan. 60.0	Feb.	Mar.	Apr.	May 22.7	ay June J	July -	Aug. 0.0	Sep.	Oct.	Nov. 0.0	Dec.
						Se	Sebastes aurora	ıra					
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	76.7 51.0	10.0	•	•	0.0			0.0		٠,	1	0.0	٠
	76.7 55.0	5.1		,	0.0	1	1	0.0	1	,	ı	0.0	,
	76.7 70.0	9.6		ı	0.0	ı	,	0.0	1	ı	1	0.0	•
	80.0 60.0	0.0		•	9.1	,	1	0.0		ı	1	0.0	•
	93.3 35.0	0.0			18.1	ı		0.0	ì	•	0.0	1	,
						Sel	astes diplot	roa					
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	76.7 70.0	9.6		1	0.0	1	,	0.0			•	0.0	r
	80.0 55.0	0.0	,	ı	0.0	•	,	0.0		1	•	10.0	ı
	80.0 60.0	10.7	•	•	9.1		•	0.0	•	•	•	0.0	٠
	86.7 50.0	7.3	•	1	0.0	1	•	0.0	•	1		0.0	,
	86.7 55.0	4.6	,	•	0.0	t	1	0.0	•	1		0.0	•
90	86.7 60.0	4.8		ı	0.0	ı		0.0	•	1		0.0	•
1	90.0 53.0	5.0	1	ı	0.0	r	•	0.0	1	1	8.5	,	,
	93.3 45.0	5.0	1	ı	0.0	1	•	0.0		1	0.0	•	•
						S	ebastes jord	ani					
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	76.7 49.0	50.5	ı	1	0.0	1	,	0.0	ı		4	0.0	•
	76.7 51.0	20.0	ı	ı	0.0	•		0.0		ı	1	0.0	1
	76.7 55.0	5.1	ı	•	0.0	1		0.0	,			0.0	•
	80.0 55.0	10.4	1	1	9.6	1	•	0.0		,	,	0.0	1
	81.8 46.9	8.9	ı	1	0.0	1	1	0.0		1	•	0.0	•
	83.3 51.0	399.6	,	1	19.1	1	1	0.0		1		0.0	1
	83.3 60.0	0.0	,	1	15.7	,	•	0.0	ı	r		0.0	1
	86.7 35.0	20.3	,	•	0.0	ı		0.0	,	•	0.0	•	٠
	86.7 40.0	0.0	1	Ì	10.3	,	:	0.0	•	•	0.0	ı	ı
	86.7 50.0	7.3	ı	1	0.0		1	0.0	ı	ı	•	0.0	1
	90.0 35.0	0.0	ı	1	25.8	•	1	0.0		,	0.0	,	•
	93.3 50.0	0.0	1	,	4.5	ı	1	0.0	1	1	0.0	1	1

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	Dec	;			Sec.		,		,				Dec	; , !		Dec.			Dec.	,	•	,		Dec.			Dec.			Dec.	,		Dec.			Dec.	
	Nov	0.0	0:0	2	Nox	. 00	0.0	0.0	0.0	0.0	} '		Nov	•		Nov.	4.4		Nov.	0.0	0.0	1		Nov.			Nov.	0.0		Nov.			Nov.	0.0		Nov.	
	Oct.	; ; ;	1		Ç	;	1	1 1	. 1	• •	0.0		Oct.	0.0		Oct.	,		Oct.	ı	,	0.0		Oct.	5.1		Oct.			Oct.	0.0		Oct.	ı		Oct.	
	Sep.	<u>.</u>	•		C. C.	; }				,	,		Sep.	٠,		Sep.	٠,		Sep.	٠,	1	•		Sep.	' 1		Sep.	٠,		Sep.	٠,		Sep.	٠,		Sep.	,
	Aug.	· .	,		Ang		•	ı	ı				Aug.			Aug.	,		Aug.) ,	ı	ı		Aug.	ı		Aug.	' '		Aug.			Aug.	ı		Aug.	,
is	July	0.0	0.0	ninis	Into	0.0	0.0	0.0	0.0	0.0	0.0	_	July	4.3	scanus	July	0.0	tus	July	0.0	0.0	0.0	vinnis	July	0.0	alis	July	0.0	riatus	July	4.7	atus	July	0.0	rmoratus	July	(
Sebastes levis	June		•	Sebastes paucispinis	June	•	•	1	,		•	Sebastolobus spp.	June	•	Sebastolobus alascanus	June	,	cylebius pic	June	ı	•		olepis latip	ly June	•	Artedius lateralis	June	1	Icelinus quadriseriatus	June	,	Leptocottus armatus	June	•	Scorpaenichthys marmoratus	June	
	May	,	ı	Sebo	Mav	` '			•	,	1		May	•	Sebas	May	1	Õ	May	ı	ı	,	Zam	May	1	An	May	•	Icelin	May	ı	Lept	May	ı	Scorpaen	May	
	Apr.	0.0	0.0		Apr.	0.0	0.0	7.9	0.0	0.0	0.0		Apr.	0.0		Apr.	0.0		Apr.	0.0	0.0	3.7		Apr.	0.0		Apr.	9.5		Apr.	18.4		Apr.	28.6		Apr.	
	Mar.	•	•		Mar.	,	,		,	,	,		Mar.	ı		Mar.	1		Mar.	1	1	1		Mar.	•		Mar.	•		Mar.			Mar.	•		Mar.	
	Feb.	,	1		Feb.	,	ı	,	,	•	1		Feb.	1	,	Feb.	•		Feb.	ı	1			Feb.	,		Feb.	ŗ		Feb.			Feb.	•		Feb.	
	Jan.	10.2	3.6		Jan.	10.4	4.4	0.0	10.9	4.6	5.0		Jan.	0.0	ı	Jan.	0.0		Jan.	4.4	3.6	0.0		Jan.	0.0		Jan.	0.0		Jan.	0.0		Jan.	0.0		Jan.	7
	Station	76.7 55.0	86.7 50.0		Station		83.3 51.0			86.7 55.0	90.0 45.0		Station	90.0 70.0		Station	80.0 90.0		Station	83.3 51.0	86.7 50.0	93.3 26.7		Station	86.7 33.0		Station	83.3 51.0		Station	86.7 33.0		Station	83.3 51.0		Station	02.2 51.0

\mathbf{T}_A	TABLE 8. (cont.)	-				040	Odoutomwie trieniuoea	830					
	Station 83.3 51.0	Jan. 0.0	Feb.	Mar.	Apr. 9.5	May -	June June -	July 0.0	Aug.	Sep.	Oct.	Nov.	Dec.
							Liparis mucosus					;	
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	83.3 51.0	0.0		ı	0.0	٠,	•	8.8	,	٠,	,	0.0	1
							Howella spp.	_					
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	86.7 110.0	0.0	ı	1	0.0	ı		8.3	ı	' 1	ı	0.0	
							Howella pammelas	elas					
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	90.0 110.0	0.0	ı	ı	0.0		ŧ	0.0	1	1	4.2	ı	,
						P	Paralabrax spp.	Ģ					
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	83.3 60.0	0.0	,	•	0.0		9.6	9.6	•		1	0.0	ŧ
						Track	urus symme	tricus					
	0	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
		0.0		•	8.9	ı	•	0.0		•	•	0.0	1
Q.		0.0	ı	•	39.6	ı	ı	0.0		1	ı	0.0	ı
2		0.0	•		4.9	ı	,	4.4	,	t		0.0	,
		0.0		•	19.4	ı		5.2	•	1		0.0	ı
		0.0		•	0.0	,		9.4	1	1	0.0	1	
		0.0	1	•	19.1	,	1	0.0		ı	•	0.0	•
	86.7 110.0	0.0		•	0.0		1	4.1	•	ı	1	0.0	,
		0.0	,	1	14.0	1	•	25.6		ı	0.0	1	ı
	_	0.0	•	ı	22.9	r	ı	0.0	,		0.0	1	ı
		4.8		ı	0.0	,	1	0.0		1	0.0	1	1
		0.0	ı	ı	0.0	•	,	10.6	1	•	0.0	1	,
		0.0	ı	ı	5.0	•	1	0.0	•	1	0.0	ı	•
			ı	ı	18.2		ı	0.0	ı	,	0.0	1	ı
		0.0	1	1	0.0	,		8.9		•	0.0	,	,
	93.3 80.0	0.0	1	1	108.1		1	0.0	ı	•	0.0	ı	ı
	93.3 90.0	0.0	•	ı	0.0		1	4.7		,	0.0	•	1
	93.3 110.0	0.0	ì	1	14.2	•	•				0.0	•	,
		ı					Brama japonica						
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	90.0 110.0	0.0	,	•	8.4		1	0.0	•	1	0.0	i	•

ABLE 8.	(cont.)	
~	ABLE 8.	

	Dec	;	?	ı	Dec	Dat.		ı		,	1	1	,		Dec.	•	,		Dec	; ;		Dec	; ·		Dec	;	•	. ;	ı	Dec	;		Dec		•	•	• ,
	Nov	•	,		Nov	17.0	7./1	0.0	9.0	0.0	5.1	t	,		Nov.	ı	1		Nov	0.0) :	Nov	9.0	2	Nov	. 7	t f			Nov	00) ;	Nov	. 7	† C	? '	
	Oct	4.4	4 4	:	Oct		•	ı	,	1	1	5.1	0.0		Oct.	0.0	0.0		Oct	; ,		Oct	; ,		Oct	;)	0	0.0) •	Oct	•		Oct	;	. :	0.0	0.0
	Sep.				Sen		1	ı	1	ı	1	ı	1		Sep.	•			Sep.	,		Sep.	• ,		Sep	; ; ;	ı	ı		Sep.	,		Sen	; ; ;	,		1
	Aug.) ,	ı		Aug.	.6)	1	ı	1	ı	ŀ	1		Aug.	1	,		Aug.	,		Aug.) ,		Aug.	ο,	,	•		Aug.	,		Aug.	,	ı	ı	ı
,	(cont.) July	0.0	0.0	eatus	July	00	0.0	0:0	0.0	0.0	0.0	0.0	0.0	sns	July	0.0	11.6	ıns	July	9.6		July	0.0	nica	July	0.0	5.2	20.7	.da	July	0.0	iger	July	0.0	83	0.0	4.1
	<i>Brama Japonica</i> (cont.) ay June Jul	ı	- 0.0	vonemus lin	June	1	•		1	ı	ı	,	•	Seriphus politus	June	•	,	rella nigrica	June		Mugil cephalus	June	,	Oxyjulis californica	June	,		•	thbunella s	June		и порошя	June	,	1	,	,
f	<i>Bram</i> May	ı	ı	Gen	May	٠,		1				ı		S.	May		ı	Ë	May		Z	_	•	Oxy	May	•	,	•	Ra	May		_	May			,	1
	Apr.	0.0	0.0		Apr.	0.0	0.0	0.0	0:0	0.0	0.0	0.0	0.0		Apr.	3.7	0.0		Apr.	0.0		Apr.	0.0		Apr.	0.0	0.0	0.0		Apr.	0.0		Apr.	0.0	0.0	4.7	0.0
	Mar.	ŧ	ı		Mar.	ı		1			1	ı	ı	;	Mar.	ı	1		Mar.	,		Mar.	,		Mar.	1		•		Mar.	,		Mar.	ı	,	,	1
	Feb.	ı	ı		Feb.	ı	ı	,		ı	ı	•	1	ŗ.	reo.	ı	ı		Feb.			Feb.	•	,	Feb.	1		ı		Feb.	ı		Feb.	,	•	į	
	Jan.	0.0	0.0		Jan.	42.7	20.7	0.0	40.2	7.7		7.1	5.1	<u>;</u>	Jall.	0.0	0.0		Jan.	0.0		Jan.	0.0	,	Jan.	0.0	0.0	0.0		Jan.	4.4		Jan.	0.0	0.0	0.0	0.0
	Station	90.0 120.0	93.3 90.0		Station		80.0 55.0							O to tion	3tdti0ii	00.7 55.0	93.3 26.7	,	Station	83.3 60.0		Station	83.3 51.0	:	Station	80.0 90.0	86.7 40.0	86.7 45.0		Station	83.3 51.0	·	Station	83.3 90.0	86.7 110.0	0.06 0.06	90.0 100.0

TA	TABLE 8. (cont.)					Chiasm	Chiasmodon niger (cont.)	(cont.)					
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	93.3 80.0	0.0			0.0			4.7	•		0.0		
	93.3 90.0	0.0		1	0.0			0.0	,	,	8.8	,	
	93.3 110.0	4.3		,	0.0	ı			•	,	0.0	,	
						5	Gibbonsia spp.	_					
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	83.3 51.0	4.4			0.0		,	0.0		1		0.0	1
						Neoc	ā	nsae					
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	90.0 28.0	0.0		1	10.2	,		0.0		ı	0.0	•	,
						Hypso		enkinsi					
	Station	Jan.	Feb.	Mar.	Apr.	May	Aay June	July	Aug.	Sep.	Oct.	Nov.	Dec.
		0.0			0.0	,		0.0				5.1	,
		0.0	,	,	0.0			4.7		,	0.0	1	•
		0.0		ı	0.0	,		0.0			3.7		,
	93.3 28.0	0.0	•		0.0	,		50.6			0.0	,	
						Coryp	S	cholsii					
9.	.≘	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
4	76.7 55.0	10.2		,	0.0			0.0	,		,	0.0	,
		9.6			0.0	,		0.0	,		1	0.0	
		0.0			0.0		,	0.0	,			4.3	,
	81.8 46.9	0.0		1	0.0			0.0			1	0.6	
	86.7 33.0	9.1			0.0		,	0.0			0.0	ı	
		0.0			8.9			0.0	,		0.0	•	
		5.0			0.0			0.0			0.0	•	,
	93.3 55.0		•		0.0			0.0	•		10.6		
						Lepi	us l	epidus					
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	80.0 51.0	0.0		•	0.0			0.0		,	,	9.8	
	93.3 26.7	4.8		•	0.0	•		0.0			0.0	1	1
						Typhlog	Typhlogobius calif	forniensis		i		1	4
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Ang.	Sep.	Oct.	Nov.	Dec.
	90.0 30.0	0.0	•	,	10.1	,		0.0		,	0.0	ı	
						Sph	ıyraena argentea	entea		i	,	;	,
	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	80.0 51.0	0.0		,	0.0	,		0.0			,	17.2	
	80.0 55.0	0.0		,	0.0	,	,	0.0	,			10.0	

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	Dec.	, I			Ī	Dec		ŀ	ı	•	,		ı	•	Dec	; 		•	1	ı ;				ı	1 1	: 1		Dec.	1		Dec.	1		Dec.	,	•
	Nov.	0.0	·	ı		N	. 0	0.0	0.0	0.0	0.0	0:0	0.0	9	Nov.	98	9.7	× ×	0.0	j. '		ı		1		•		Nov.	0.0		Nov.	•		Nov.	0.0	0.0
	Oct.	,	0.0	0.0	;	Oct	;			r			ı	ı	Oct.	1	,	•	ı	46	0.0	24.0	4 2	10.5	0.0	0.0		Oct.	,		Oct.	0.0		Oct.	1	ı
	Sep.	٠,	1	,		Sen	<u>.</u>	,	ı	ı	s	1	1 (Sep.	٠,	,	•	,	1		•		1	,	•		Sep.	1		Sep.	•		Sep.	1	ı
	Aug.	•	,			Aug.	0 1	1		ı	ı	1 1	ı 1		Aug.	ı	ı	ı	ı	1	,	ı		ı	ı	,		Aug.	1		Aug.	1		Aug.	•	ı
nicus	July	3.5	0.0	0.0	ıgtoni	July	0.0	0.0	0.0	0.0	0.0	0.0	0:0	uvieri	July	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.0	5.1	8.4	imus	July	9.5	spp.	July	0.0	rdidus	July	0.0	0.0
Scomber japonicus	June	ı	ı	1	hthys lockii	June	ı	ı	•	ı		ı	•	agonurus c	June	1	•		ı	•		•	ı	ı	1	- 8.4	rilus simill	June	•	harichthys	June	- 0.0	richthys so	June	•	ı
Sc	May	1	1		Icic	May	, ,	ı	,	•	1	,		Tetr	May	1			1		•	•		•	1	1	Pep	May June July	•	Ë	May		Citha	May	1	ı
	Apr.	0.0	36.2	4.7		Apr.	9.9	0.0	9.1	00	5. 4 . 8. 8.	4.9	4.8		Apr.	0.0	0.0											Apr.			Apr.	0.0	•	Apr.	0.0	0.0
	Mar.	•	1	ı		Mar.	ı	ι	,	ı	•				Mar.	1	,		•	,	•	,	•	•	ı	•		Mar.	1	;	Mar.	ı	į	Mar.		ı
	Feb.	ı	,			Feb.	•	ī	•	ı			•		Feb.	1	1	•	,	ı	•		•	•	•	ı		Feb.		t.	reb.		-	reb.	1	ı
,	Jan.	0.0	0.0	0.0		Jan.	0.0	4.9	0.0	10.8	5.0	0.0	0.0		Jan.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		Jan.	0.0	_	Jan.	C.11]	Jan.	7.18	40.0
	Station		93.3 35.0								83.3 90.0		83.3 110.0												93.3 100.0	93.3 110.0		Station	03.3 42.0		Station 96.7	80.7 40.0	Chation	≍	70.7 49.0	

T	TABLE 8. (cont.)	. (cont.)					Cittania	Malane Condition	(2004)					
	Static	u(Jan.	Feb.	Mar.	Apr.	May	May June J	s (cont.) July	Aug.	Sep.	Oct.	Nov.	Dec.
	7.97	55.0	71.7	ľ	,	0.0	,	•	0.0	,	٠,	ı	8.7	•
	76.7	0.09	4.8		ı	0.0	•		61.5	•	•	1	8.1	1
	7.97	70.0	143.8	,	1	0.0		•	0.0	٠	1	ı	8.7	4
	76.7	0.06	8.6	,	•	0.0	1	ı	0.0	•	•		0.0	t
	80.0	51.0	0.0	•	•	0.0			0.0	ı	,	r	158.7	•
	80.0	55.0	0.0	1	i	19.1	•	1	18.0	1		,	120.0	•
	80.0	0.09	21.5		1	9.1	•	Ŀ	10.3	ı	1	•	25.1	•
	80.0	70.0	54.1	1	1	0.0		ı	0.0	•		•	9.6	•
	80.0	80.0	9.6	,		8.9	•	Ī	0.0	ı	•	ı	0.0	•
	80.0	0.06	0.6	,	•	0.0	•	ı	0.0	ı	ı	•	0.0	٠
	80.0	100.0	0.0	ı	1	0.0		ı	0.0	1		1	4.3	1
	81.8	46.9	0.0		ı	9.6		,	9.99		,	1	153.1	ı
	83.3	40.6	3.4		,	0.0	ı	ı	0.0		,		0.0	,
	83.3	42.0	0.0		1	0.0	•	ı	19.0	,	,	•	0.0	•
	83.3	51.0	0.0	1	,	0.0		ı	0.0	,	1	,	9.0	•
	83.3	55.0	19.3		,	0.0	•		9.6	Ī	ā		0.0	,
96	83.3	0.09	0.0		·	0.0	r	ı	9.6	,	,	:	0.0	t
	83.3	70.0	10.8	,	ı	0.0	1	ı	0.0	ı	•		0.0	1
	83.3	80.0	8.5		,	0.0	•	,	0.0	1	1	,	0.0	,
	83.3	0.06	19.9	•	•	0.0	•	i	0.0	•	1	,	0.0	1
	86.7	33.0	0.0	•	1	0.0		1	4.7			0.0	•	ı
	86.7	35.0	0.0	•	1	0.0		ı	19.4	ı	1	0.0	ı	•
	86.7	40.0	22.9		1	20.6	ı	ı	10.4	ı	•	0.0	•	1
	86.7	45.0	10.1	ı	•	6.7	,	ı	0.0	•		17.7	1	,
	86.7	50.0	32.7	•	•	0.0	•	•	4.8	1			0.0	1
	86.7	55.0	9.2	ı	ı	0.0	,	,	19.4	•	•	ı	9.5	•
	86.7	0.06	4.9	•		0.0	•	1	0.0	•	1	1	0.0	ı
	90.0	30.0	0.0	,	ŧ	0.0			0.0	•	•	4.4	•	1
	90.0	35.0	0.0	ı	•	17.2	1	•	0.0			18.1	ı	•
	90.0	37.0	0.0	1	1	0.0	•	•	4.4	ı	•	0.0	1	•
	90.0	45.0	15.0	•	ı	0.0	1	•	0.0	•	•	0.0	•	٠
	0.06	0.09	4.9	•	ı	9.3	ì		0.0	ı	1	8.6	,	ı
	90.0	70.0	0.0	1	ı	4.7	•	ì	0.0	1	ı	0.0	1	١
	93.3 30	30.0	0.0	1	,	9.4	•		6.6	1		0.0	•	•
	93.3	40.0	0.0	,	1	10.0	ı	ı	0.0	ı	•	0.0	•	1

Station	Jan.	Feb.	Mar.	Apr.	Citharicl Mav	Citharichthys sordidus (cont.) May Inne Inne	us (cont.)	Αυσ	S	ţ	7	ć
3 45.0	0.0	•	1	0.0	(m) -	ans '	9.9	Aug.	oep.	0 C.F.	Nov.	Dec.
					Cithar	richthys stig	maeus			?		•
tion	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep	Oct	Nov	Dec
49.0	0.0	r	1	0.0		,	0.0	·	ļ.,	,	167	;
51.0	0.06	•	1	0.0	•	1	10.6	1	,	ı	18.3	
55.0	0.0	,		6.7	ı	•	16.7	•	•	ı	0.97	
0.09	4.8	ı	•	0.0	,	,	30.7		ı	ĺ	20.0	1
70.0	67.1	ı		0.0	ı	ı	0.0	•		1 1	2.10	ı
80.0	9.6	1		0.0	,	,	0.0	,	,	,	0.0	•
51.0	0.0		1	0.0	1	•	0.0				0.0	•
80.0 55.0	0.0		•	9.6	,	,	18.0		•		30.0	
0.09	43.0	ı	1	9.1	ı	1	41.3	•	,	•	50.1	ı
0.07 (18.0	ı	ı	0.0	1		9.4	,	•	ı .	30.1 0.6	ı
0.08 (4.8	,		0.0	,	,	0.0	,		,	9.0	ı
0.06 (27.0		ŧ	0.0	ı	1	0.0	,		•	0.0	1
46.9	0.0	•	ı	0.0	ŧ	ł	177.7	•	1 1	•	0.01	•
42.0	0.0	1	,	9.4		,	19.0	,	,		0.0	t I
51.0	22.2		•	0.0	•	1	0.0	•	•	,	0:0	I
55.0	19.3	•	ı	0.0	ı		9.6	ı	1		0.0	1
0.09	0.0	•	ŧ	0.0	ı		172.6				0.0	ı
33.0	0.0	•		0.0			0.0	,	•	15.2	1.7	•
35.0	0.0	•	t	0.0	•	•	7.6	ı	,	0.0		
40.0	11.5		1	0.0		ı	0.0	,	,	0.0	,	i i
45.0	5.1	1	•	6.7	,	1	20.7	ı	•	17.7		
50.0	7.3		,	0.0	•	ı	4.8	ı	•		0.0	
55.0	4.6		ı	6.6	•	•	2.6	ı			9.5	
0.0/	. ;		,	0.0	ı	,	0.0	1	1	,	10.1	,
80.0	8.9	•	ı	0.0	ı	,	0.0		•	ı	0.0	
35.0	0.0	ı		9.8	1	1	0.0	,	,	0 0	2	ı
37.0	0.0	r	•	0.0	1		4.4	,		17.4		
45.0	10.0	ı	ı	0.0	İ	ı	0.0	,	ı		ı	1
53.0	10.0	ı	•	0.0	1	1	8.2	ı	,	17.1	1 1	,
0.09	4.9	,	•	0.0	ı	•	0.0	,	•	7.7	•	•
70.0	0.0	ı	,	4.7	1	•	0.0	,		0.0	1	
30.0	2.0	ı	•	0.0	ı	1	0.0	•	t	0.0	. ,	
										,		

TABLE 8. (cont.)

Shifting Jan Feb. Mar. Apr. May Jing Aug. Sep. Oct. Nov. Dec. 93.3 35.0 1.0 - 0.0 - 1.0 - 9.0	•						THE VISITE COLUMN						
0.0	_	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
0.0		0.0		1	0.0	•	,	21.2	· .	٠,	0.6	1	1
11.9		0.0	1	1	0.0	1	,	10.0		,	16.4	•	•
11.9 -		0.0	ı	1	0.0	•	1	29.7		1	0.0	ı	•
Jan. Feb. Mar. Apr. 122 . 0.0 . . 0.0 . . 0.0 . . 0.0 . . 0.0 . . 0.0 . . 0.0 . . 0.0 . . 0.0 . . 0.0 . . . 0.0 .		11.9	•	,	0.0	1		0.0		1	0.0	ı	ı
Jan. Feb. Mar. Apr. Paralichtlys californicus 0.0 - - 0.0<		ı	,	ı	0.0		•	12.2		1	0.0	,	ı
Jan. Paralichthys californicus 3.9 - 0.0 - 0.0 - 0.0 3.9 - 0.0 - - 0.0 - 0.0 0.0 - - 0.0 - - 0.0 - 0.0 0.0 - - 0.0 - - 0.0 - 0.0 - 0.0 0.0 - - 0.0 - - 0.0 0.0 - 0.0 - <td></td> <td>1</td> <td>,</td> <td>1</td> <td>4.5</td> <td>;</td> <td>,</td> <td>0.0</td> <td>•</td> <td>1</td> <td>0.0</td> <td>ı</td> <td>1</td>		1	,	1	4.5	;	,	0.0	•	1	0.0	ı	1
Jan. Feb. Mar. Apr. May June July Aug Sep. Oct. Nov. 3.9 - 0.0 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 - - 0.0 0.0 - -						Parali	chthys calife	ornicus					
3.9 - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 1.0.1 - - 0.0 - - 0.0 1.0.0 - - 0.0 - - 0.0 - 1.0.1 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - <td>Station</td> <td>Jan.</td> <td>Feb.</td> <td>Mar.</td> <td>Apr.</td> <td>May</td> <td>June</td> <td>July</td> <td>Aug.</td> <td>Sep.</td> <td>Oct.</td> <td>Nov.</td> <td>Dec.</td>	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
0.0 - - 0.0 - - 0.0 0.0 - - 0.0 -	0.0 51.0	3.9		,	0.0	1	ı	0.0	•	1	•	0.0	ı
0.0 - - 0.0	1.8 46.9	0.0	•	ı	0.0	,	•	1.1		1	,	0.0	•
0.0 - - 0.0	0.0 28.0	0.0	•	ı	10.2	,	1	0.0	ı	ı	0.0	1	•
0.0 - - 0.0 - - 0.0 - Jan. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. 0.0 - - 0.0 - - 0.0 Jan. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. 0.0 - - - 0.0 - - 0.0 1an. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. 0.0 - - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0<	0.0 30.0	0.0		,	10.1	•	,	0.0	1		0.0	ı	
Jan. Feb. Mat. Apr. May June July Aug. Sep. Oct. Nov. 0.0 - - 0.0 - - 0.0 Jan. Feb. Mar. Apr. June July Aug. Sep. Oct. Nov. 0.0 - - 4.5 - - 0.0	3.3 26.7	0.0	,	ı	0.0	ı	•	23.2	•	,	0.0		,
Jan. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. 0.0 - - 9.0 - - 0.0 Jan. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. Jan. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 -<						Glypto	cephalus za	chirus					
1an. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. 1an. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - -	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Jan. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. 0.0 - - 0.0 - 0.0 - 0.0 - - 0.0 - - 0.0 - 0.0 - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0	0.0 55.0	0.0		ı	0.0		,	0.6				0.0	
Jan. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. 0.0 - - 4.5 - - 0.0 -						Lepiu	dopsetta bili.	neata					
0.0 - 4.5 - 0.0 - 0.0 - - 0.0	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Jan. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. 0.0 - - 8.5 - - 0.0 - -	3.3 50.0	0.0	ı	•	4.5	ı	•	0.0	1	,	0.0	1	1
Jan. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - <td></td> <td></td> <td></td> <td></td> <td></td> <td>L</td> <td>yopsetta exi</td> <td>lis</td> <td></td> <td></td> <td></td> <td></td> <td></td>						L	yopsetta exi	lis					
0.0 - - 8.5 - - 0.0 - - 0.0 0.0 - - 14.8 - - 0.0 - - 0.0 - 0.0 - - 0.0		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
0.0 - - 14.8 - - 0.0 - -		0.0	•	,	8.5	•	1	0.0	•	1	1	0.0	,
0.0 - - 0.0 - - 0.0 - 0.0 - - 0.0 - - 0.0 - 0.0 - - 0.0 - - 0.0 - 1.0 - - 0.0 - - 0.0 - - 0.0 0.0 - - 8.8 - - - 0.0 - - 0.0 31.1 - - 0.0 - - 0.0 - - 0.0 31.1 - - 0.0 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 - - 0.0 0.0 - - 0.0 - - - 0.0 - - 0.0 0.0 - - 0.0 - - - 0.0 - - 0.0 0.0 - - 0.0 - -		0.0	•	,	14.8	•		0.0	1	,	0.0		•
9.0 - - 0.0 - - 0.0 - Jan. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. 0.0 - - 8.3 - - 0.0 0.0 - - 0.0 - - 0.0 31.1 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 0.0 -		0.0	•	1	10.2	•	,	0.0	,		0.0	1	
Microstomus pacificus Jan. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. 0.0 - - - - - 0.0 0.0 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 - 0.0 - - 0.0 - - 0.0 - 0.0 - 0.0 - - 0.0 - - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 -		0.0		•	4.5	•		0.0	•		0.0	,	٠
Jan. Feb. Mar. Apr. May June July Aug. Sep. Oct. Nov. 0.0 - - - - - 0.0 0.0 - - 0.0 - - 0.0 31.1 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 - 0.0 - - 0.0 - - 0.0 - 0.0 - 0.0 - - 0.0 - - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 - - 0.0 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td>Micr</td> <td>ostomus pac</td> <td>ificus</td> <td></td> <td></td> <td></td> <td></td> <td></td>						Micr	ostomus pac	ificus					
0.0 - - 8.3 - - 0.0 0.0 - - 8.8 - - 0.0 31.1 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 0.0 - - 0.0 - 0.0 - 0.0 - - 0.0 - 0.0 - - - 0.0 - - 0.0 - - - 0.0 - - 0.0 -	Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
0.0 - - 8.8 - - 0.0 31.1 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 0.0 - - 0.0 - 0.0 - 0.0 - - 0.0 - 0.0 - - - 0.0 - - 0.0 - - - 0.0 - - 0.0 -	6.7 55.0	0.0			0.0	•		8.3	•	1	1	0.0	,
31.1 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 0.0 - - 0.0 - - 0.0 - 0.0 - - 0.0 - 0.0 - 0.0 - - - 0.0 - - 0.0 - 0.0 -	0.09 2.9	0.0		1	8.8	1	,	0.0	•		ı	0.0	1
0.0 - - 0.0 - - 0.0 0.0 - - 9.3 - - 0.0 - - 0.0 - 0.0 - - 0.0 - - 0.0 - - 0.0 - - - 0.0 - - 0.0 - 0.0 -	0.0 55.0	31.1	1	1	0.0	1	,	0.0	ı	•	1	0.0	1
0.0 - - 9.3 - - 0.0 - - 0.0 - 0.0 - - 0.0 - 0.0 - - 0.0 - - 0.0 - - 0.0 - 0.0 - <	0.09 2.9	0.0	,	1	0.0	t		8.6	•	•	•	0.0	•
0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 12.2 0.0 - 0.0 - 0.0 0.0 - 0.0 0.0 - 0.0	0.0 70.0	0.0		•	9.3	•	1	0.0	,	,	0.0	ı	1
0.0 12.2 0.0 .	3.3 40.0	0.0		•	0.0		,	10.0	ı	,	0.0		•
	3.3 55.0		•	ı	0.0	1	,	12.2	,	•	0.0	:	•

Dec. -Dec. Nov. 0.0 0.0 Nov. Nov. 0.0 0.0 Nov. Nov. Oct. 0.0 Oct. Oct. 0.0 Oct. 10.1 Sep. Sep. Sep. Sep. Aug.
Aug.
Aug. Aug. Symphurus atricaudus
May June July
Disintegrated fish larvae
May June May June July
- 0.0

Pleuronichthys verticalis

May June July
- 7.0 Pleuronichthys ritteri ay June Jul Parophrys vetulus Apr. 0.0 0.0 Apr. 10.1 Apr. 0.0 0.0 Apr. 0.0 Apr. 0.0 Mar. --Mar. Mar. Mar. Mar. Feb. -Feb. Feb. --Feb. -Feb. -Jan. 0.0 3.8 Jan. 0.0 Jan. 0.0 0.0 Jan. 0.0 Jan. 0.0 Station 76.7 49.0 83.3 42.0 Station 90.0 30.0 Station 83.3 40.6 83.3 60.0 Station 86.7 40.0 Station 90.0 53.0

TABLE 8. (cont.)

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